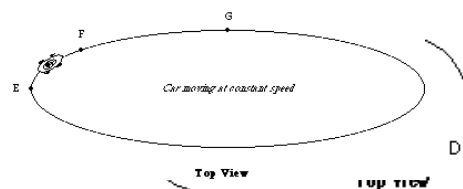


Student#:

NAME: ,

**Part I:**

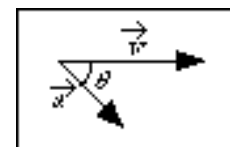
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>f</b></p> <p>Q5: The acceleration at point F: <b>b</b></p> <p>Q6: The acceleration at point G: <b>g</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>acceleration is always pointing towards the center</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>E</b></p> <p>Q9. Explain. <b>e is a point with the most distance from the oval</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>G</b></p> <p>Q11. Explain. <b>g is the closest point to the center of the oval</b></p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

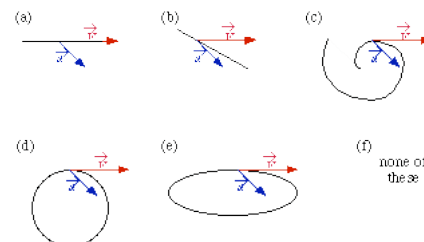


Q12. The object at this instant is: **moving at constant speed**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **a**

Q14. Explain.

END OF RESPONSE

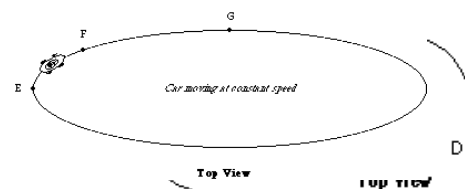


Student#:

NAME: ,

**Part I:**

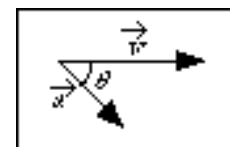
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: g</p> <p>Q5: The acceleration at point F: d</p> <p>Q6: The acceleration at point G: h</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>Because the car is traveling in a circle its acceleration is outward.</b></p>	<p>Point E:</p> <p>(a) E [zero] (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. <b>Because the track is not an exact circle.</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. <b>Because this is the flattest part of the circle.</b></p>	<p>Point F:</p> <p>(a) F [zero] (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G [zero] (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

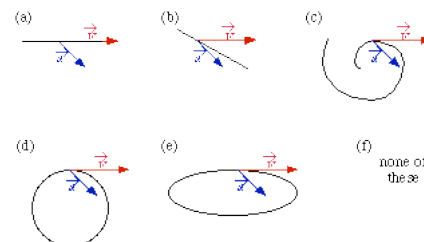


Q12. The object at this instant is: **moving at constant speed**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **a**

Q14. Explain. **Because the motion is constant.**

END OF RESPONSE

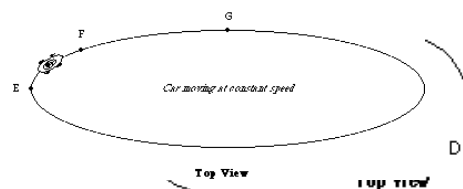


Student#:

NAME: ,

**Part I:**

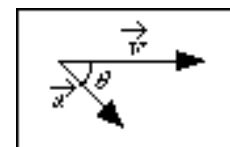
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>f</b></p> <p>Q5: The acceleration at point F: <b>g</b></p> <p>Q6: The acceleration at point G: <b>d</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>because.....</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>E and F</b></p> <p>Q9. Explain. <b>that is where the the curves are the steepest making of the largest asseleration.....</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>G</b></p> <p>Q11. Explain. <b>because it is....</b></p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

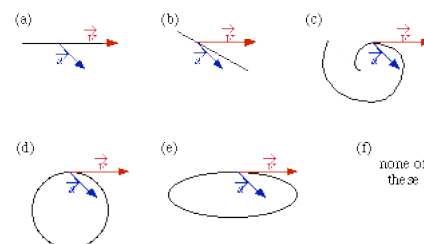


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **a**

Q14. Explain. **because....**

END OF RESPONSE

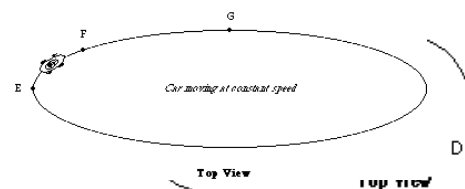


Student#:

NAME: ,

**Part I:**

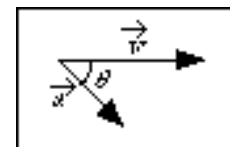
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>F</b></p> <p>Q5: The acceleration at point F: <b>F</b></p> <p>Q6: The acceleration at point G: <b>G</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>When an object is moving in a circular motion the acceleration vectors are always pointed towards the center.</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>The acceleration is always pointed towards the center.</b></p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>same as stated above.</b></p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

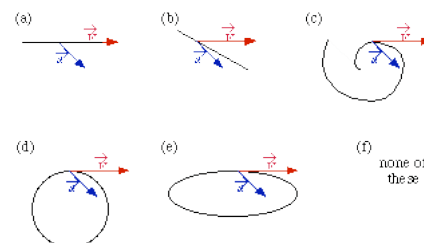


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **a**

Q14. Explain. **Because if the trajectory of the object was in a circular motion then the acceleration vector would have to point towards the center.**

**END OF RESPONSE**

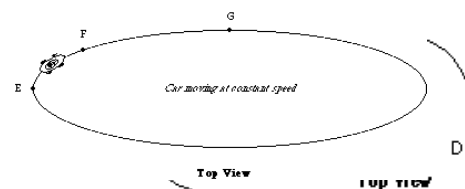


Student#:

NAME: ,

**Part I:**

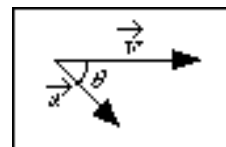
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: a</p> <p>Q5: The acceleration at point F: a</p> <p>Q6: The acceleration at point G: a</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. Since the car is moving at a constant speed then there is no acceleration. So the acceleration at all the points is zero.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. Since there is no acceleration the magnitude for all the points is the same.</p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. same answer as above.</p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

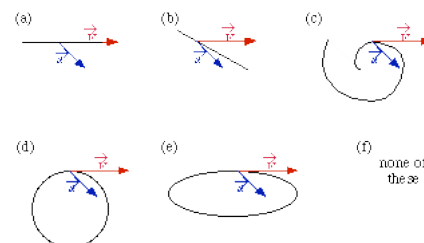


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. a

Q14. Explain. the trajectory is going to be in the direction of the velocity and the acceleration is going down due to the fact that gravity is pulling it down even if there is a surface that prevents it from going down.

END OF RESPONSE

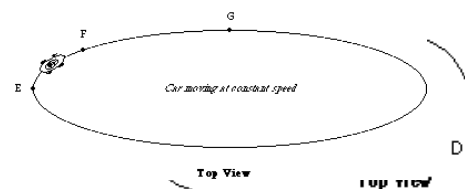


Student#:

NAME: ,

**Part I:**

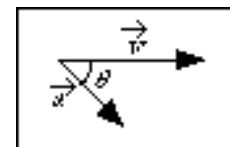
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: j</p> <p>Q5: The acceleration at point F: k</p> <p>Q6: The acceleration at point G: k</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. There was no acceleration so I picked other for all of them. I figured that they were all zero.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. There was no acceleration so they were all equal at 0.</p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. There was no acceleration so they were all the same.</p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

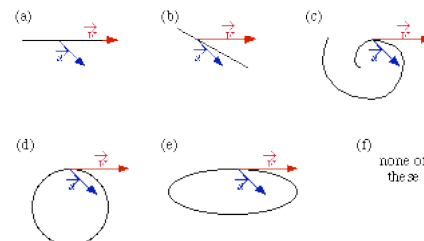


Q12. The object at this instant is: **slowing down**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **a**

Q14. Explain. It looked the same as the figure given.

END OF RESPONSE

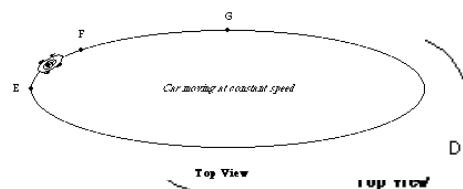


Student#:

NAME: ,

**Part I:**

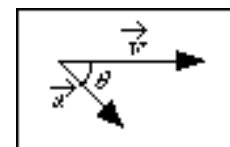
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>a</b></p> <p>Q5: The acceleration at point F: <b>c</b></p> <p>Q6: The acceleration at point G: <b>c</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>The car is going in a circle and the velocity is constant</b></p>	<p>Point E:</p> <p>(a) E [zero] (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>G</b></p> <p>Q9. Explain. <b>I'm not sure</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>G</b></p> <p>Q11. Explain. <b>I will guess constant velocity</b></p>	<p>Point F:</p> <p>(a) F [zero] (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G [zero] (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

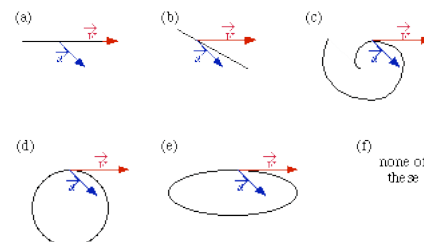


Q12. The object at this instant is: **slowing down**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **a**

Q14. Explain.

END OF RESPONSE

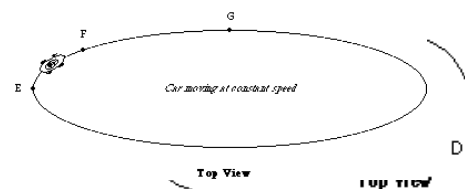


Student#:

NAME: ,

**Part I:**

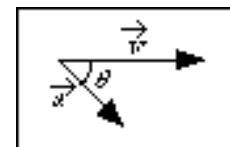
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: a</p> <p>Q5: The acceleration at point F: a</p> <p>Q6: The acceleration at point G: a</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. if the car is moving at a constant speed, then the acceleration of the car is zero and has no vector at all.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. again, the acceleration of the car is always zero, since the car is moving at a constant speed</p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. again, the acceleration of the car is always zero, since the car is moving at a constant speed</p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

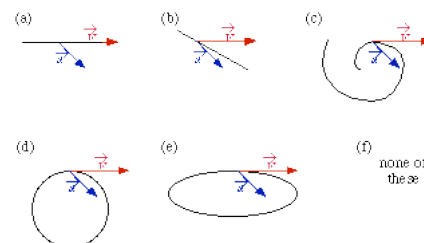


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. a

Q14. Explain. i chose option a because this option lets the object continue on its course while keeping the angle between its vectors the same

END OF RESPONSE



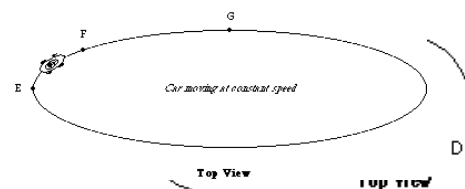


Student#:

NAME: ,

**Part I:**

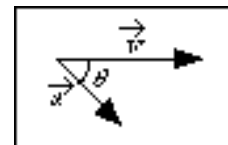
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: a</p> <p>Q5: The acceleration at point F: a</p> <p>Q6: The acceleration at point G: a</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <i>the velocity never changes, therefore the acceleration stays at zero.</i></p>	<p>Point E:</p> <p>(a) E [zero] (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <i>all have equal magnitude</i></p> <p>Q9. Explain. <i>at every point the car stays at a constant speed.</i></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <i>all have equal magnitude</i></p> <p>Q11. Explain. <i>the car always has an constant magnitude.</i></p>	<p>Point F:</p> <p>(a) F [zero] (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G [zero] (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

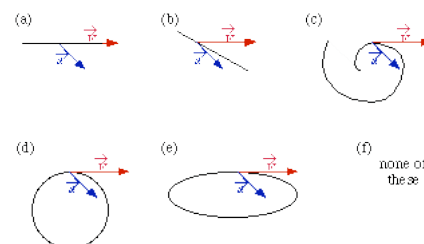


Q12. The object at this instant is: **slowing down**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **a**

Q14. Explain. *the velocity vector indicates the direction of the object, therefore the object moves horizontally.*

END OF RESPONSE

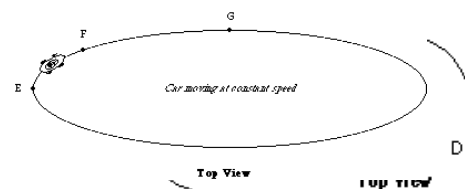


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NAME: ,

**Part I:**

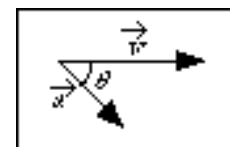
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>A</b></p> <p>Q5: The acceleration at point F: <b>E</b></p> <p>Q6: The acceleration at point G: <b>D</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>Since the velocity is constant, the acceleration has got to be zero</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>unanswered</b></p> <p>Q9. Explain.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>because it goes at a constant speed therefore it has constant acceleration</b></p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

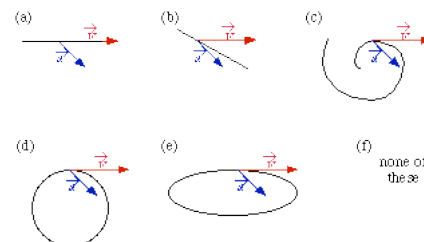


Q12. The object at this instant is: **moving at constant speed**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **a**

Q14. Explain.

**END OF RESPONSE**

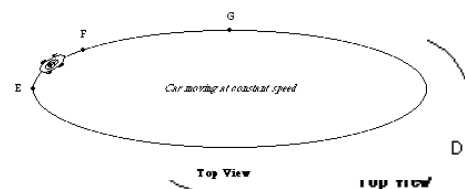


Student#:

NAME: ,

**Part I:**

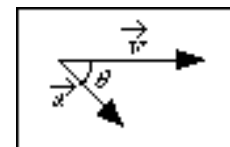
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>e</b></p> <p>Q5: The acceleration at point F: <b>e</b></p> <p>Q6: The acceleration at point G: <b>f</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. The acceleration is in the direction of the dogs path and my answers were choosen accordingly.</p>	<p>Point E:</p> <p>(a) E [zero] (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. I think that all have equal magnitude because there is no change the accelerations magnitude as the car is traveling at a constant speed, only a chairection.</p>	<p>Point F:</p> <p>(a) F [zero] (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. I think that all have equal magnitude based upon the same reasoning as above.</p>	<p>Point G:</p> <p>(a) G [zero] (b) G (c) G (d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

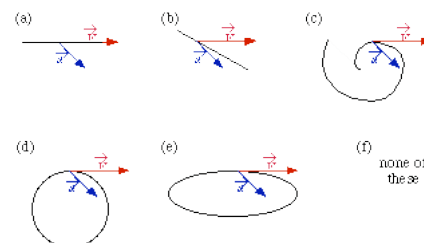


Q12. The object at this instant is: **slowing down**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **a**

Q14. Explain. I'm not entirely sure, but I'm going to assume that the velocity vector has to be in the same path as the path traveled

END OF RESPONSE

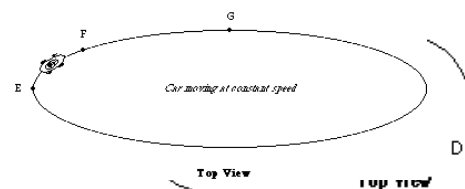


Student#:

NAME: ,

**Part I:**

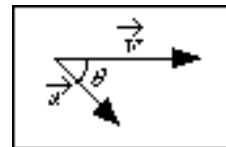
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: b</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. well there is acceleration as the car keeps on changing direction. and the force= (mass * acceleration) that is pulling the car towards teh center (centripetal force ) so acceleration points towards the center .</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. well.. the car is mving at a contasnt rate, and the force pulling it towards the center is contant and since teh mass is a constant quantity then acceleration is also constant,</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. it will be equal at all times <math>F=ma</math>.</p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

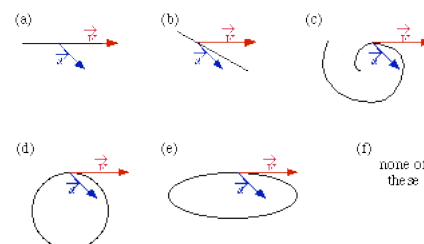


Q12. The object at this instant is: slowing down

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. ab

Q14. Explain. For teh circular motion it should point towards teh center (acceation)so only a & b seem like teh logical choice.

END OF RESPONSE

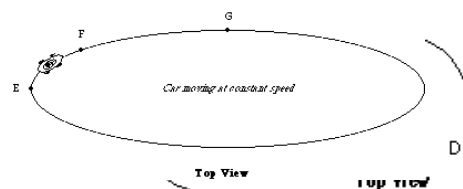


Student#:

NAME: ,

**Part I:**

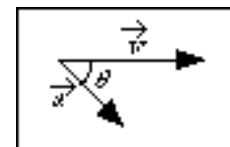
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: g</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. Since the path is circular, the acceleration would always be pointing inward toward the center of the circle.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. The reason all have equal magnitudes because circular path have same acceleration pointing inward toward the center.</p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. The reason all have equal magnitudes because circular path have same acceleration pointing inward toward the center.</p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

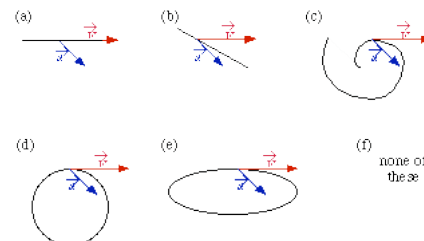


Q12. The object at this instant is: moving at constant speed

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. ab

Q14. Explain. A and B because both ma

END OF RESPONSE

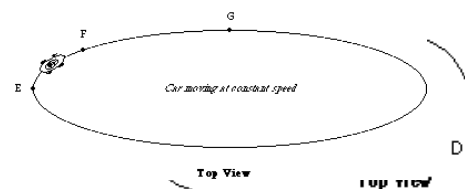


Student#:

NAME: ,

**Part I:**

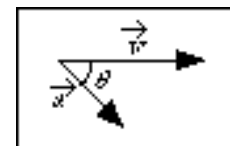
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: g</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. The acceleration is in the same direction of the net force, and the net force is the centripetal force, and therefore points into the center.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. The acceleration is greatest at point E because that is the time when there is the greatest change in direction per unit of time - which means the greatest change in velocity per unit time.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. The acceleration is smallest at point G because there is the smallest change in direction, hence smallest change in velocity per unit time.</p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

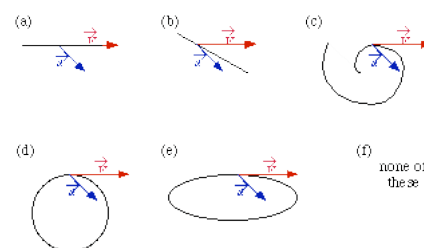


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **ab**

Q14. Explain. I chose a and b because I know that the acceleration for a circle is always towards the center - so that rules out c,d, and e.

END OF RESPONSE

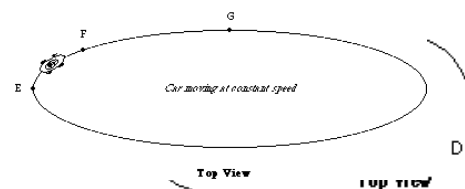


Student#:

NAME: ,

**Part I:**

A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



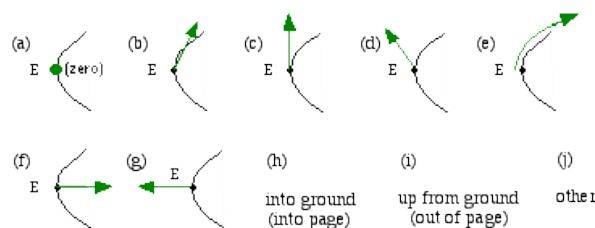
Q4: The acceleration at point E: b

Q5: The acceleration at point F: c

Q6: The acceleration at point G: f

Q7. Explain how you knew which acceleration vector to choose for each point. I knew these because these vectors are the ones that show which way the acceleration points are going.

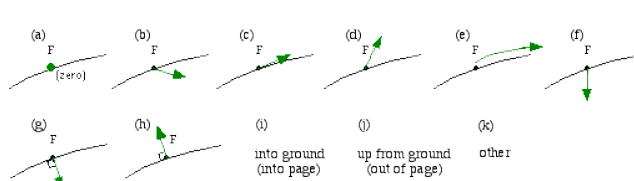
Point E:



Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E and F

Q9. Explain. I believe that it is E and F, because in order to get around the curve, you will need to have a greater acceleration, and the F point because you then need to get constant velocity going.

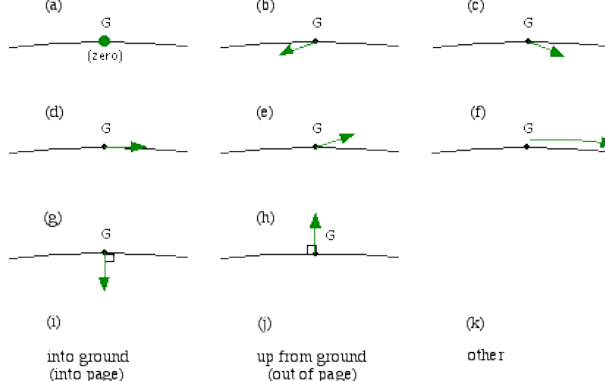
Point F:



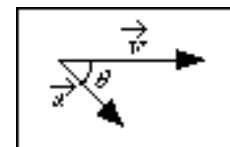
Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G

Q11. Explain. Because there aren't many big curves and the G point can just coast around the track.

Point G:

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

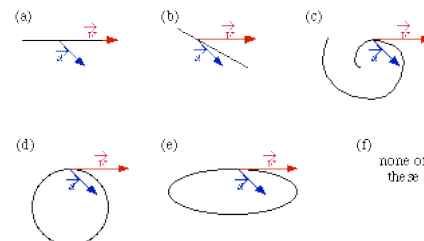


Q12. The object at this instant is: speeding up

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. ab

Q14. Explain. I choose these figures because i believe that the trajectory object is on a straight line.

END OF RESPONSE

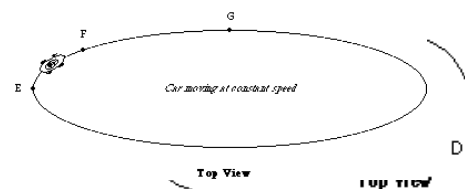


Student#:

NAME: ,

**Part I:**

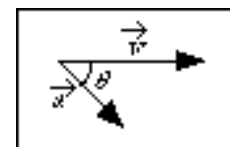
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: c</p> <p>Q5: The acceleration at point F: d</p> <p>Q6: The acceleration at point G: f</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? G</p> <p>Q9. Explain. <i>Because the car is going straight.</i></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? E</p> <p>Q11. Explain. <i>It's going around the tightest part of the curve.</i></p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

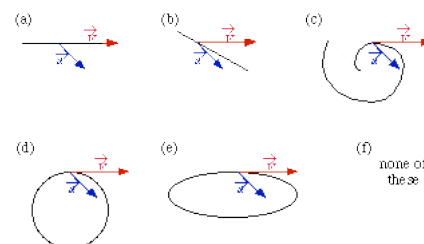


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **ab**

Q14. Explain.

END OF RESPONSE



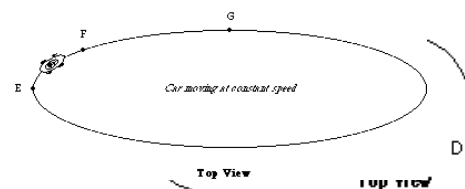


Student#:

NAME: ,

**Part I:**

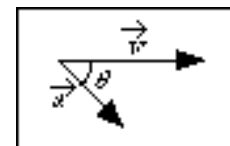
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: a</p> <p>Q5: The acceleration at point F: a</p> <p>Q6: The acceleration at point G: a</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. if velocity is constant then there is no acceleration so in this case acceleration must be 0, since the car is neither speeding up nor slowing down</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. the car is going at the same speed throughout the track</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. the car is going at the same speed throughout the track</p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

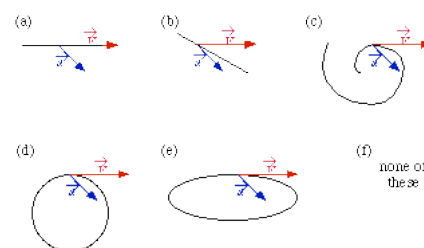
The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **ab**

Q14. Explain. velocity indicates the direction as well as the magnitude, and since velocity is pointing to the right i assume the object will travel in the same direction



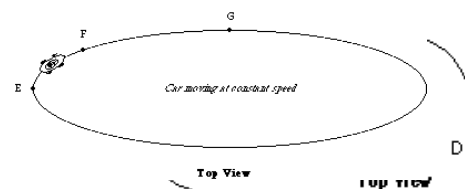
END OF RESPONSE

Student#:

NAME: ,

**Part I:**

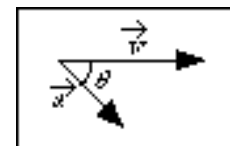
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>e</b></p> <p>Q5: The acceleration at point F: <b>a</b></p> <p>Q6: The acceleration at point G: <b>a</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>since the car moves at a constant speed, it isn't accelerating or decelerating, so its acceleration vectors won't have any magnitude</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>since the speed is constant, the magnitude will be constant</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>since the speed is constant, the magnitude will be constant</b></p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

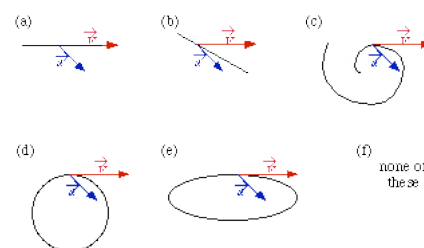
The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: **slowing down**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **ab**

Q14. Explain. I'm assuming that the object will be moving in the direction of the velocity, and accelerating in the direction of the acceleration vector. I figured that the motion of the object must be in between those two vectors somehow.



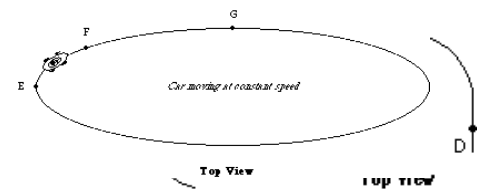
END OF RESPONSE

Student#:

NAME: ,

**Part I:**

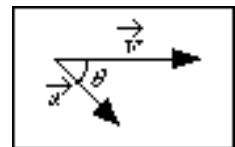
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: a</p> <p>Q5: The acceleration at point F: a</p> <p>Q6: The acceleration at point G: a</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. If the velocity of the car is constant the acceleration would be zero</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. If the velocity of the car is constant the acceleration would be zero</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. If the velocity of the car is constant the acceleration would be zero</p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

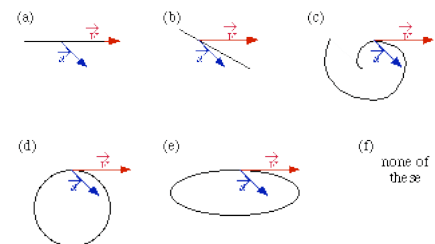


Q12. The object at this instant is: moving at constant speed

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. abd

Q14. Explain. they represent what is specified in the given information

END OF RESPONSE

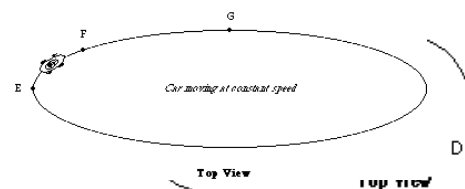


Student#:

NAME: ,

**Part I:**

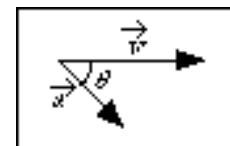
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: a</p> <p>Q5: The acceleration at point F: a</p> <p>Q6: The acceleration at point G: a</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. Since the car is at a constant velocity, the acceleration equals zero except for the constant force of gravity pulling it down</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. The velocity is constant so there is no change in acceleration</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. Same as above.</p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

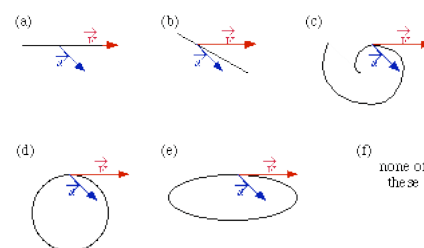


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **abd**

Q14. Explain. I chose these figures because the direction of the velocity can be affected by the acceleration and thus pull the object in a different direction, but since acceleration is constant, it would have to be a uniform movement. It could also travel straight ahead if there was something to keep it from moving in the direction of the acceleration, like a car on a street with its acceleration pointing at an angle like that.

END OF RESPONSE

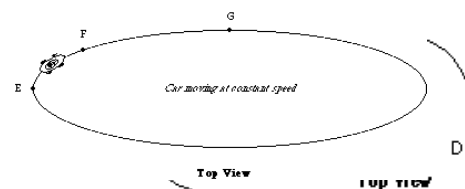


Student#:

NAME: ,

**Part I:**

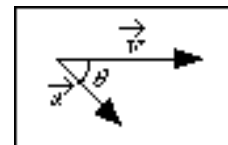
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>a</b></p> <p>Q5: The acceleration at point F: <b>a</b></p> <p>Q6: The acceleration at point G: <b>a</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>At a constant velocity there is no acceleration.</b></p>	<p>Point E:</p> <p>(a) E [zero] (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>At constant velocity there is no acceleration.</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>at constant velocity there is no acceleration.</b></p>	<p>Point F:</p> <p>(a) F [zero] (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G [zero] (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

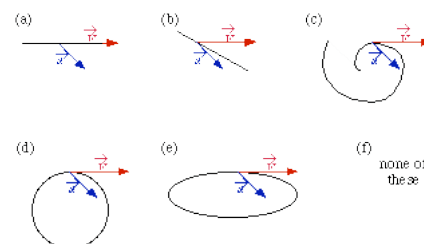
The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **abde**

Q14. Explain. **These figures show the direction that all of the objects will take.**



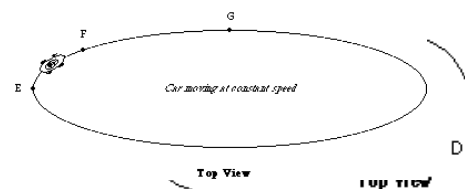
END OF RESPONSE

Student#:

NAME: ,

**Part I:**

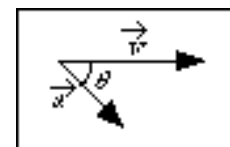
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: b</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>I chose the acceleration vectors that points to the center of the ellipse.</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>Since the car is traveling at constant velocity, the only part of the acceleration that changes is the direction, not the magnitude.</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>Same as above</b></p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

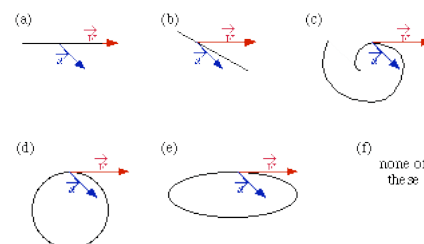
The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **ac**

Q14. Explain. **The velocity vectors both point in the direction of movement at the instant and the acceleration points in the direction which allows the object to speed up.**



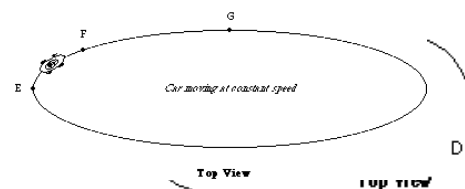
END OF RESPONSE

Student#:

NAME: ,

**Part I:**

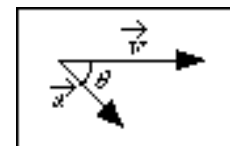
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: c</p> <p>Q5: The acceleration at point F: c</p> <p>Q6: The acceleration at point G: a</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. For points E, and F, the car is going around a curve and therefore needs to accelerate tangent to the path to keep a constant velocity.</p>	<p>Point E:</p> <p>into ground (into page)    up from ground (out of page)    other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? F</p> <p>Q9. Explain. After that point the acceleration decreases to keep the constant velocity.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. The car is on a semi straight line and almost needs no acceleration to keep the velocity constant</p>	<p>Point F:</p> <p>into ground (into page)    up from ground (out of page)    other</p> <p>Point G:</p> <p>into ground (into page)    up from ground (out of page)    other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

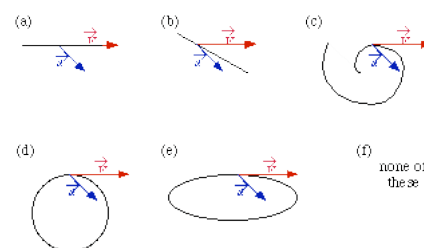


Q12. The object at this instant is: slowing down

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. ac

Q14. Explain. To keep a constant velocity the acceleration is in d and e need to be positive, where the acceleration is downward, or negative. In b, the

END OF RESPONSE

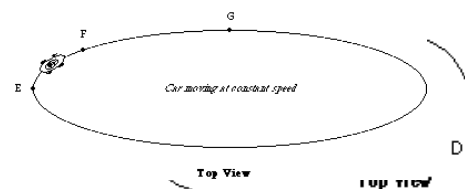


Student#:

NAME: ,

**Part I:**

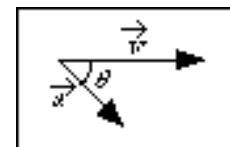
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: a</p> <p>Q5: The acceleration at point F: a</p> <p>Q6: The acceleration at point G: a</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. The car is not accelerating, so I chose the diagram without the acceleration vector.</p>	<p>Point E:</p> <p>(a) E [zero] (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. the magnitude is always 0 because the car is not speeding up.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. it is always 0.</p>	<p>Point F:</p> <p>(a) F [zero] (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G [zero] (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

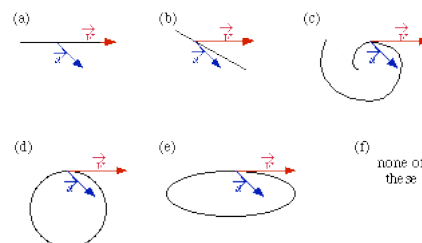


Q12. The object at this instant is: **slowing down**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **acde**

Q14. Explain. the velocity vector is tangent to the position line, showing that it is the derivative of the position.

END OF RESPONSE



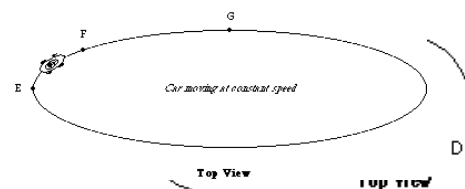


Student#:

NAME: ,

**Part I:**

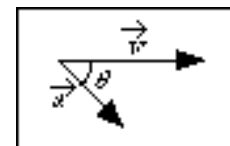
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: b</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. The acceleration at these points acts towards the center of the circle for an object travelling around a circle with constant speed.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. They all have equal magnitude for acceleration, the only thing that is different is the direction of the acceleration.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. They all have the same magnitude of acceleration because it is travelling at a constant speed, but it is moving around a circle path, and the direction of acceleration is different.</p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

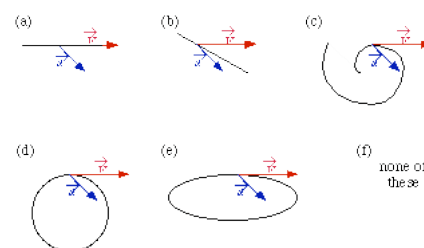


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **ad**

Q14. Explain. A is a possible choice because it is moving to the right but might be going down a hill and accelerating in a different direction. D is because it is travelling around a circle and keeps it going.

END OF RESPONSE

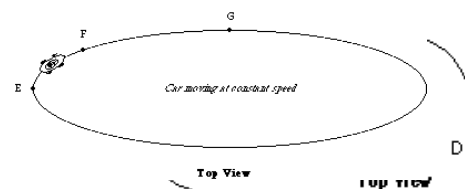


Student#:

NAME: ,

**Part I:**

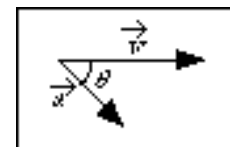
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: a</p> <p>Q5: The acceleration at point F: c</p> <p>Q6: The acceleration at point G: d</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>the car is traveling at a constant speed counter clockwise, and his motion is forward at all times.</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>they are all traveling at a constant speed with a magnitude equal at all times.</b></p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>the car is accelerating constantly at the same speed at all points, leaving the same magnitude for all points on the probe..</b></p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

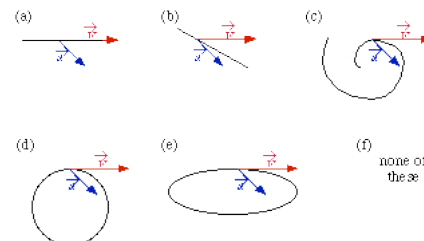


Q12. The object at this instant is: **moving at constant speed**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **ade**

Q14. Explain. **the trajectory is constant**

**END OF RESPONSE**

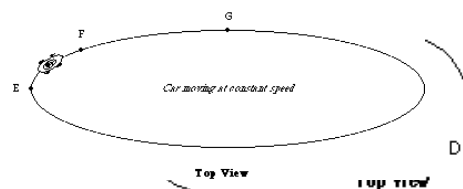


Student#:

NAME: ,

**Part I:**

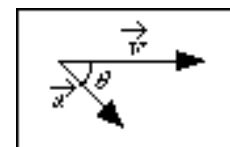
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>e</b></p> <p>Q5: The acceleration at point F: <b>c</b></p> <p>Q6: The acceleration at point G: <b>s</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>Just used my knowledge to guess, because we haven't learned this yet in class.</b></p>	<p>Point E:</p> <p>(a) E [zero] (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>They have a constant motion</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>Constant</b></p>	<p>Point F:</p> <p>(a) F [zero] (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G [zero] (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

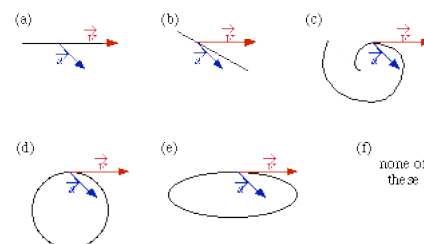


Q12. The object at this instant is: **slowing down**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **ae**

Q14. Explain. **Those two points are the points where the trajectory is such.**

**END OF RESPONSE**

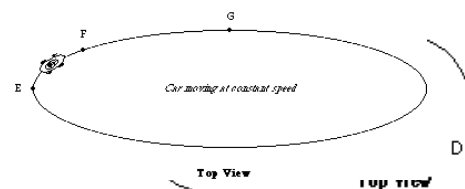


Student#:

NAME: ,

**Part I:**

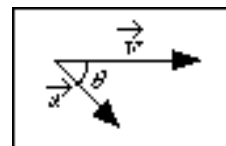
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>b</b></p> <p>Q5: The acceleration at point F: <b>c</b></p> <p>Q6: The acceleration at point G: <b>d</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. Even though the magnitude of the velocity is not changing, the direction is constantly changing and so the acceleration is in the same direction as the velocity.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. The ball is travelling at a constant rate, so the change in velocity over the change in time will be constant.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>See above.</b></p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

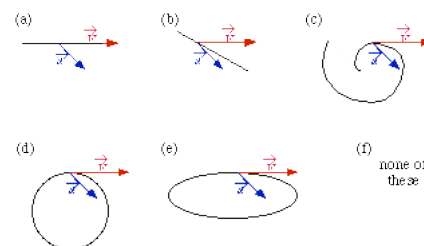


Q12. The object at this instant is: **slowing down**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **b**

Q14. Explain. The acceleration is constant so the velocity rotates towards the acceleration vector, but does not pass it.

END OF RESPONSE

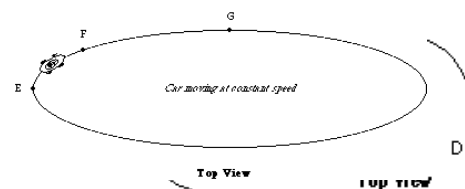


Student#:

NAME: ,

**Part I:**

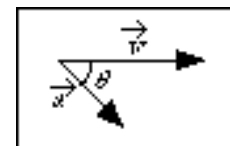
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>e</b></p> <p>Q5: The acceleration at point F: <b>c</b></p> <p>Q6: The acceleration at point G: <b>a</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>as the car goes around the corners it experiences deceleration, but since it is travelling at a constant speed the acceleration on the straightaways will be zero</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>E</b></p> <p>Q9. Explain. <b>this is when the turn is most dramatic, thus the acceleration will be the greatest</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>G</b></p> <p>Q11. Explain. <b>here the car is experiencing the least amount of turn, so there it will be experiencing the least amount of acceleration</b></p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

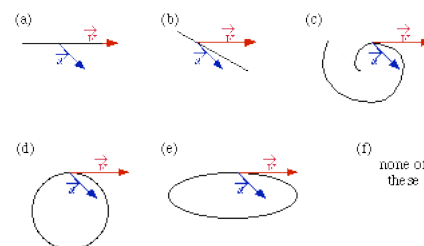
The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: **slowing down**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **b**

Q14. Explain. **since the acceleration is moving downward, the velocity will reflect that.**



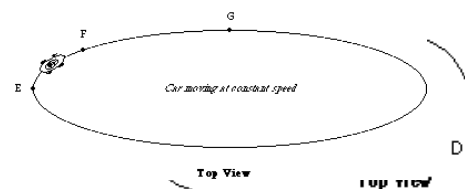
END OF RESPONSE

Student#:

NAME: ,

**Part I:**

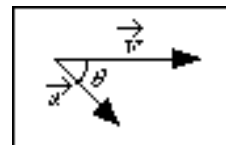
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: c</p> <p>Q5: The acceleration at point F: c</p> <p>Q6: The acceleration at point G: d</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. I don't think I am right.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? G</p> <p>Q9. Explain. Because the car is going the straightest.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? E</p> <p>Q11. Explain. Because the curve is so great.</p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

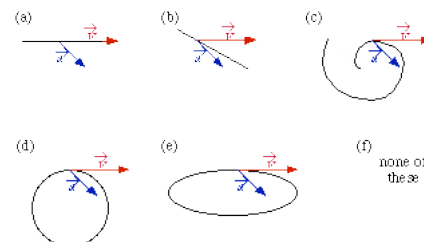


Q12. The object at this instant is: slowing down

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. b

Q14. Explain. The acceleration is negative, so the object has to be going down.

END OF RESPONSE

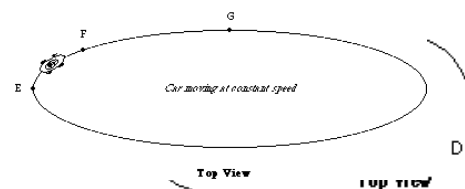


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NAME: ,

**Part I:**

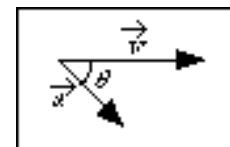
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: b</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. Since the car is undergoing uniform circular motion, the acceleration vectors will always point toward the center of the circle.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. Since the speed is constant and only the direction of the velocity is changing, the acceleration vector will always have a constant magnitude.</p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. For the same reason as the response to question 21.</p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

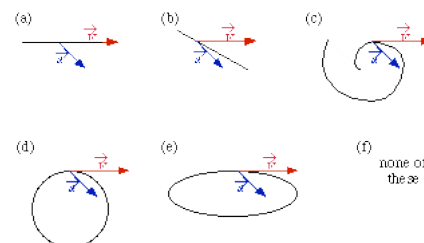


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **b**

Q14. Explain. Since the acceleration vector has both an x component and y component, it indicates that there is s

END OF RESPONSE

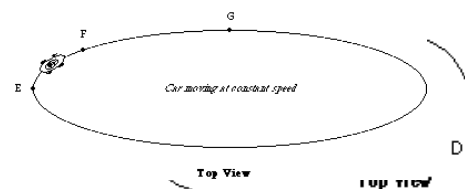


Student#:

NAME: ,

**Part I:**

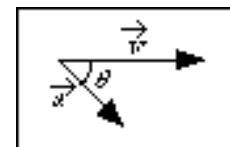
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: a</p> <p>Q5: The acceleration at point F: a</p> <p>Q6: The acceleration at point G: a</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. I chose zero for all of my answers because the car is traveling with constant speed, which I think means it has zero acceleration.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. I think the acceleration is zero throughout the entire motion.</p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. As stated in the problem above, I believe the car has equal acceleration throughout the entire motion.</p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

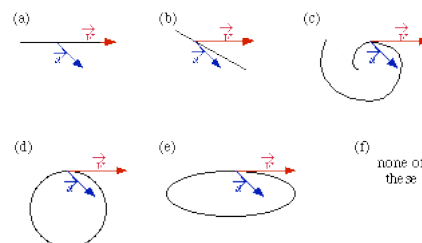


Q12. The object at this instant is: cannot tell from this information

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. b

Q14. Explain. I used the method we went over in class for adding vectors which would produce a line similar to the one shown in answer 'b'.

END OF RESPONSE



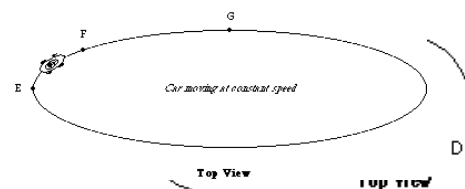


Student#:

NAME: ,

**Part I:**

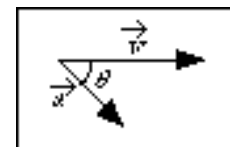
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>F</b></p> <p>Q5: The acceleration at point F: <b>G</b></p> <p>Q6: The acceleration at point G: <b>G</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. The acceleration around a circular path is a centripetal acceleration that keeps the car from flying out of the track.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>E</b></p> <p>Q9. Explain. The centripetal acceleration is highest because the curve is the smallest. So at constant speed throughout the track, the force pushing in, acceleration, must be greatest.</p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>G</b></p> <p>Q11. Explain. The curve is not that great so less force pulling into the center of the track is least.</p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

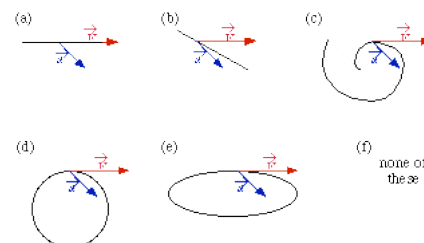


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **b**

Q14. Explain. The velocity vector is pushing the object straight to the right, and the acceleration vector pushes it diagonally downwards to the right. So the object will be headed in the right direction but heading downwards.

END OF RESPONSE

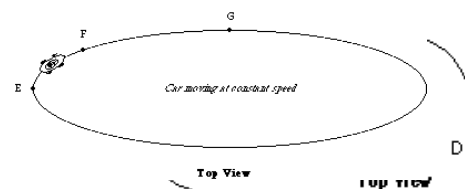


Student#:

NAME: ,

**Part I:**

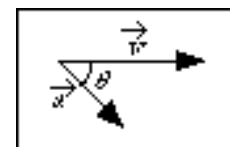
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: c</p> <p>Q5: The acceleration at point F: c</p> <p>Q6: The acceleration at point G: d</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>The lines I choose where tangent to the circle.</b></p>	<p>Point E:</p> <p>(a) E [zero] (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>the speed is constant the car has an acceleration of zero.</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>acceleration of zero</b></p>	<p>Point F:</p> <p>(a) F [zero] (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G [zero] (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

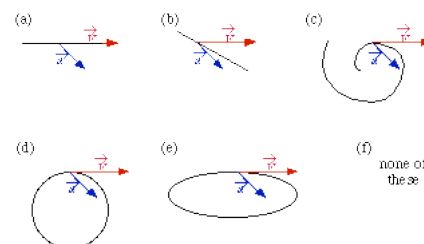


Q12. The object at this instant is: **slowing down**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **b**

Q14. Explain. **b, looks similar to the sum of the two vectors**

**END OF RESPONSE**

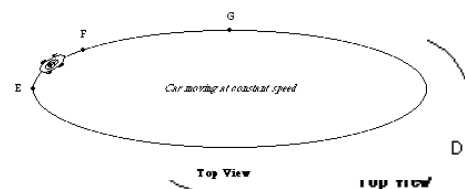


Student#:

NAME: ,

**Part I:**

A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



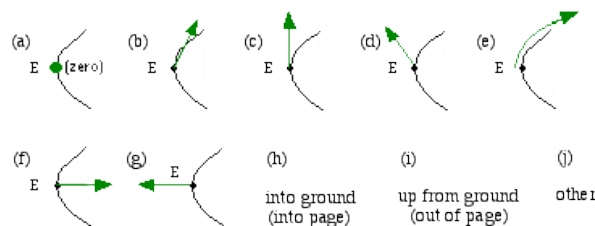
Q4: The acceleration at point E: d

Q5: The acceleration at point F: c

Q6: The acceleration at point G: a

Q7. Explain how you knew which acceleration vector to choose for each point. There will be acceleration on the car in the corners because of the direction change as it turns. This acceleration wants to pull the car out of the track.

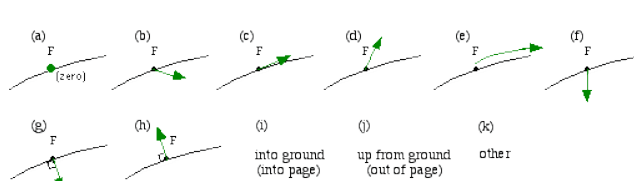
Point E:



Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E

Q9. Explain. This is the apex of the corner, the sharpest point. Therefore the acceleration will be the greatest as this is the biggest change in velocity.

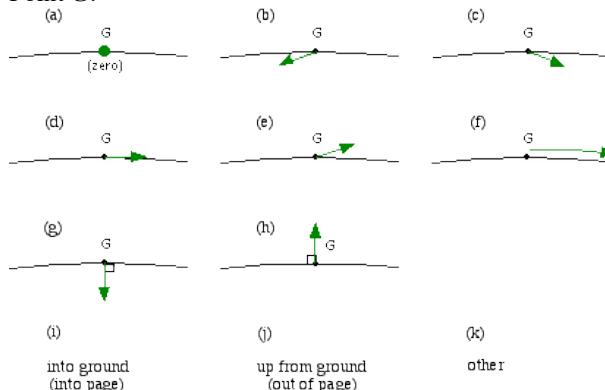
Point F:



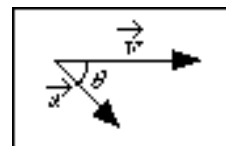
Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G

Q11. Explain. This is the straightest portion of the track, with little if any change in direction. with constant speed, the acceleration is zero.

Point G:

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

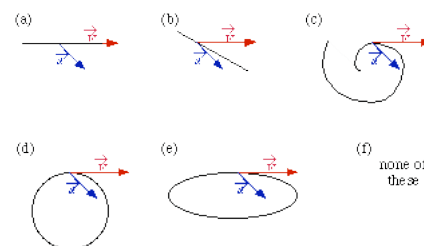


Q12. The object at this instant is: moving at constant speed

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. b

Q14. Explain. the object is travelling at a constant speed, but due to the negative acceleration, it is falling downward.

END OF RESPONSE

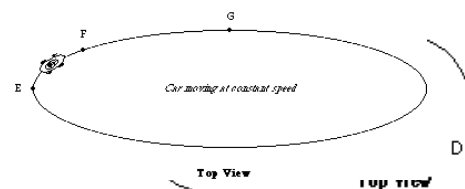


Student#:

NAME: ,

**Part I:**

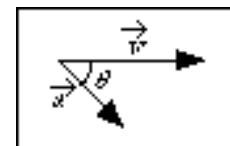
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: c</p> <p>Q5: The acceleration at point F: c</p> <p>Q6: The acceleration at point G: d</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. the acceleration vector is parallel to the velocity vector which is in the direction of travel perpendicular to the tangent of the graph</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? G</p> <p>Q9. Explain. it is at the long part of the oval track</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? E</p> <p>Q11. Explain. it is at the narrow end of the oval track</p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

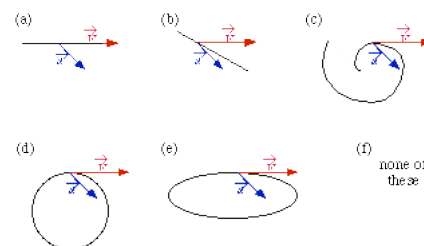


Q12. The object at this instant is: cannot tell from this information

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. b

Q14. Explain. it resembled a ball being thrown the most.

END OF RESPONSE

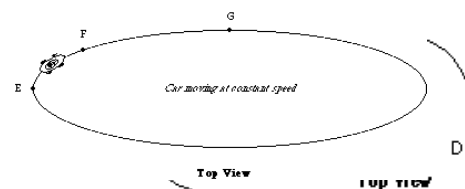


Student#:

NAME: ,

**Part I:**

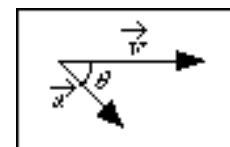
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: g</p> <p>Q5: The acceleration at point F: h</p> <p>Q6: The acceleration at point G: h</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. The acceleration vector is perpendicular to the velocity vector</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. Since the car is going at a constant speed, the acceleration depends solely on the rate of change in direction. The car is changing direction the fastest at point E.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. At point G, the rate of change in direction is the smallest.</p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

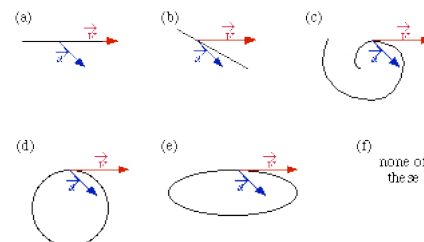


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **b**

Q14. Explain.

END OF RESPONSE

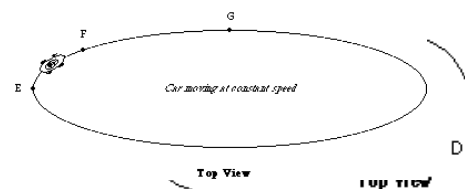


Student#:

NAME: ,

**Part I:**

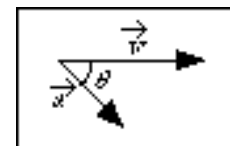
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: c</p> <p>Q5: The acceleration at point F: f</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. the acceleration is still changing even with the constant velocity, but in the case of circular motion, the acceleration always points to the center of the circle</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. the car's acceleration is greater on the sharpest turn of the track because the force to keeping the car in the circular motion is greater.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. the car is traveling along the more straight part of the track where barely any acceleration exists because less force is needed to hold the car in the path.</p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

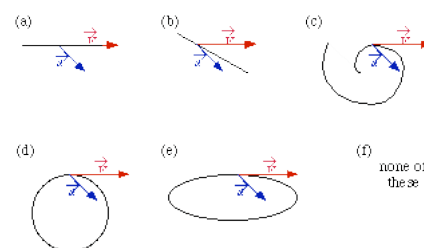


Q12. The object at this instant is: cannot tell from this information

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. b

Q14. Explain. I am not all that positive to the answer for this problem, so I am just guessing and attempting to use some logic that I learned last year.

END OF RESPONSE

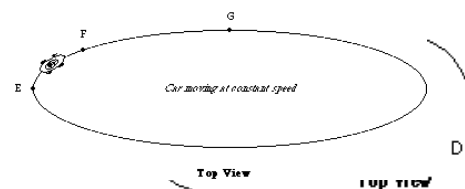


Student#:

NAME: ,

**Part I:**

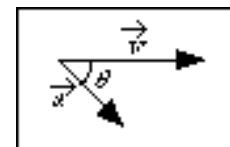
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: g</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. Since the car moves at a constant speed, the acceleration only affects the directional component.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. the rate of change (as shown in the curve) is greatest at the west and east ends, so acceleration is the greatest</p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. the rate of change (as shown in the curve) is smallest at the north and south ends, so acceleration is the smallest</p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

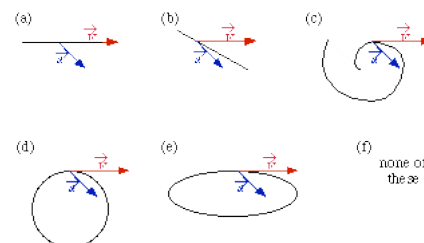


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **b**

Q14. Explain. with the x-axis vectors adding continually, there will be no case in which the object crosses behind the starting point, and with the negative y-component in a, the slope should go down.

END OF RESPONSE

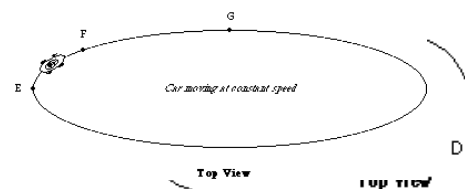


Student#:

NAME: ,

**Part I:**

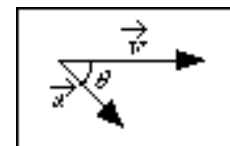
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>A</b></p> <p>Q5: The acceleration at point F: <b>A</b></p> <p>Q6: The acceleration at point G: <b>A</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>As it stated in the beginning, the car was moving at the same speed the entire time. This means that the entire time the acceleration was zero, giving me my answer.</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>The acceleration is zero the entire time, giving all points an equal magnitude.</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>The acceleration is zero the entire time, giving all points an equal magnitude.</b></p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

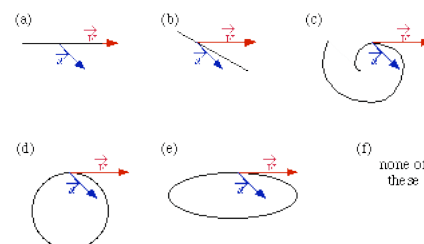


Q12. The object at this instant is: **cannot tell from this information**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **b**

Q14. Explain. **It took the direction**

**END OF RESPONSE**



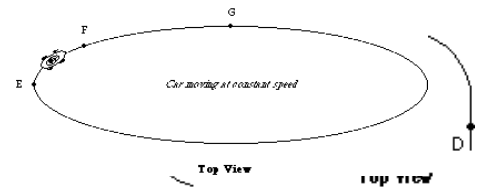


Student#:

NAME: ,

**Part I:**

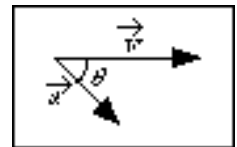
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>F</b></p> <p>Q5: The acceleration at point F: <b>G</b></p> <p>Q6: The acceleration at point G: <b>G</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>I found the line perpendicular to the tangent at each point and pointing in from the concave side of each curve.</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>They are all the same because the acceleration is constant magnitude throughout.</b></p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>See answer 21</b></p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

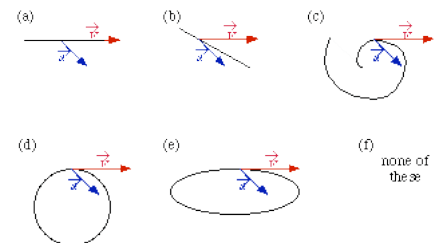


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **b**

Q14. Explain. **because it is the only one where acceleration vector**

**END OF RESPONSE**

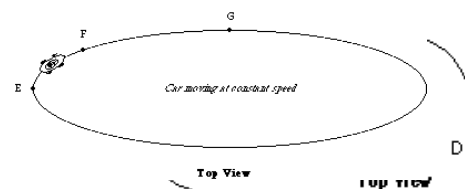


Student#:

NAME: ,

**Part I:**

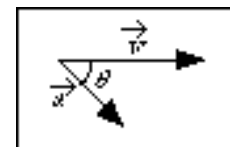
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>e</b></p> <p>Q5: The acceleration at point F: <b>c</b></p> <p>Q6: The acceleration at point G: <b>f</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>Because the car is moving in a circle so the direction of each vector has to be in the same direction as the car moving</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>G</b></p> <p>Q9. Explain. <b>Because the car is at its constant speed</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>E and F</b></p> <p>Q11. Explain. <b>at E and F it is decelerate as it making a curve</b></p>	<p>Point F:</p>
	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

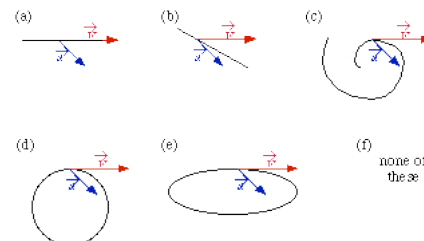


Q12. The object at this instant is: **slowing down**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **b**

Q14. Explain.

END OF RESPONSE

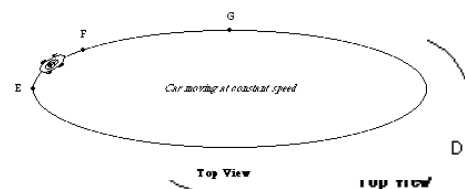


Student#:

NAME: ,

**Part I:**

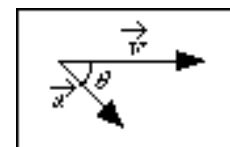
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: c</p> <p>Q5: The acceleration at point F: f</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>constant acceleration</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>the acceleration is constant</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>the acceleration is constant</b></p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

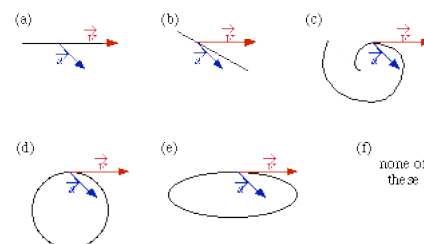


Q12. The object at this instant is: **slowing down**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **b**

Q14. Explain. **adding the two vector result in a straight line in between**

**END OF RESPONSE**

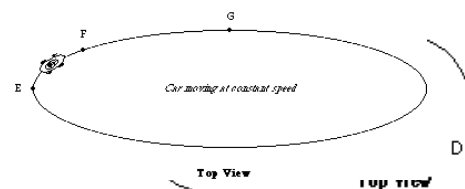


Student#:

NAME: ,

**Part I:**

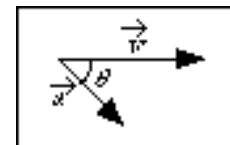
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: a</p> <p>Q5: The acceleration at point F: a</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>velocity is constant so there is no acceleration</b></p>	<p>Point E:</p> <p>(a) E [zero] (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>they are all zero</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>they are all zero</b></p>	<p>Point F:</p> <p>(a) F [zero] (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G [zero] (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

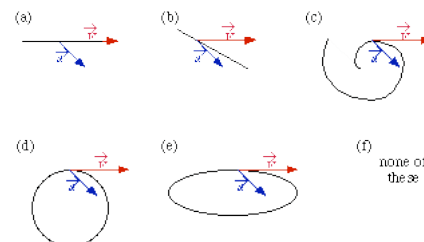


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **b**

Q14. Explain. **you need to just find the vector in the middle**

**END OF RESPONSE**

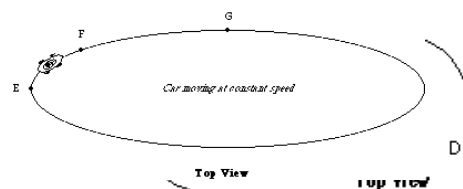


Student#:

NAME: ,

**Part I:**

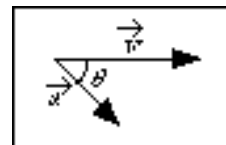
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: b</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. The acceleration for a circle is towards the center of the circle.</p>	<p>Point E:</p> <p>(a) E [zero] (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. The car accelerates the most at point E because its furthest away from the center of the circle</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. Point G is closest to the center of the circle so the magnitude is the smallest.</p>	<p>Point F:</p> <p>(a) F [zero] (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G [zero] (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

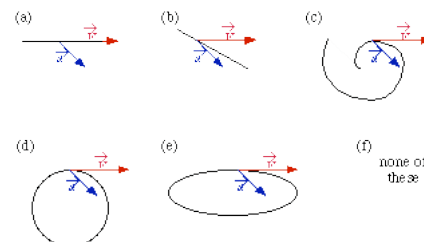
The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **b**

Q14. Explain. The acceleration added to the velocity vector would produce a line such as the one in B.



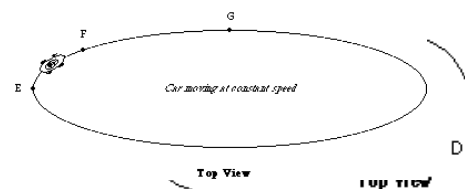
END OF RESPONSE

Student#:

NAME: ,

**Part I:**

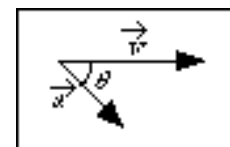
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: b</p> <p>Q5: The acceleration at point F: b</p> <p>Q6: The acceleration at point G: d</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>Acceleration is the sum of the centrifugal force and direction of travel.</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>G</b></p> <p>Q9. Explain. <b>Acceleration is in one direction.</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>E</b></p> <p>Q11. Explain. <b>Vectors have greatest angle.</b></p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

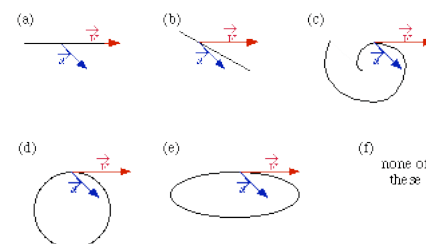


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **b**

Q14. Explain. **Line lands on vect**

END OF RESPONSE

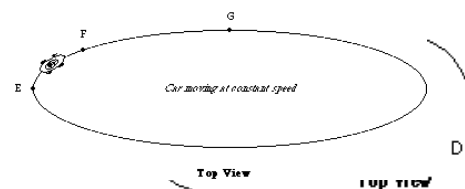


Student#:

NAME: ,

**Part I:**

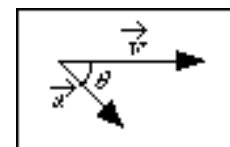
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: a</p> <p>Q5: The acceleration at point F: a</p> <p>Q6: The acceleration at point G: a</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>The car is moving at constant speed therefore it is not accelerating.</b></p>	<p>Point E:</p> <p>(a) E [zero] (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>The car is moving at constant speed therefore it is not accelerating.</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>The car is moving at constant speed therefore it is not accelerating.</b></p>	<p>Point F:</p> <p>(a) F [zero] (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G [zero] (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

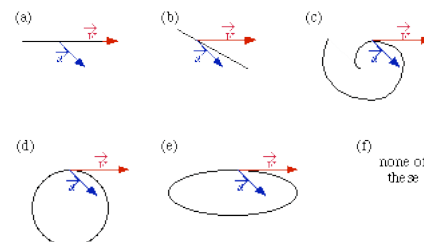


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **b**

Q14. Explain. **Both the velocity and the acceleration are constant which will result in a strait line.**

END OF RESPONSE

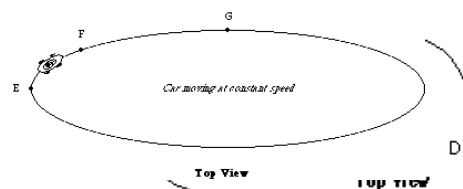


Student#:

NAME: ,

**Part I:**

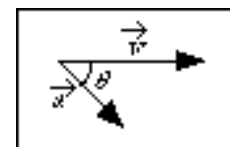
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>a</b></p> <p>Q5: The acceleration at point F: <b>a</b></p> <p>Q6: The acceleration at point G: <b>a</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>The car is not accelerating</b></p>	<p>Point E:</p> <p>(a) E [zero] (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>the acceleration is zero at every point.</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>F and G</b></p> <p>Q11. Explain. <b>the acceleration is zero at every point.</b></p>	<p>Point F:</p> <p>(a) F [zero] (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G [zero] (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

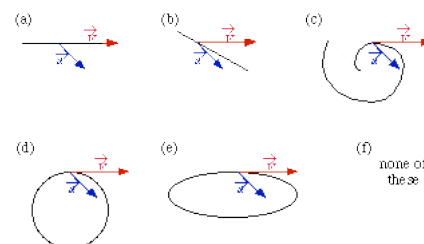


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **b**

Q14. Explain. **I'm not sure**

END OF RESPONSE



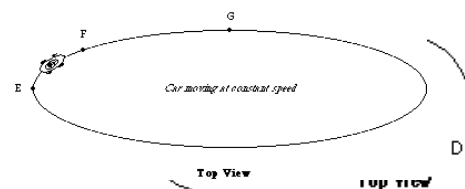


Student#:

NAME: ,

**Part I:**

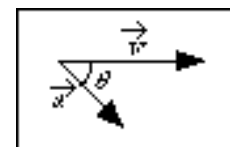
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>c</b></p> <p>Q5: The acceleration at point F: <b>c</b></p> <p>Q6: The acceleration at point G: <b>f</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>the acceleration is in the direction the car is facing at that specific time</b></p>	<p>Point E:</p> <p>(a) E [zero] (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>velocity is constant, so same acceleration all around</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>velocity is constant, so same acceleration all the way around the track.</b></p>	<p>Point F:</p> <p>(a) F [zero] (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G [zero] (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

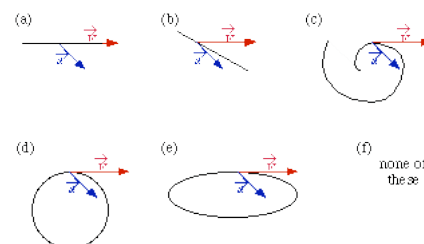


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **b**

Q14. Explain. **It is in the middle of the velocity and acceleration.**

END OF RESPONSE

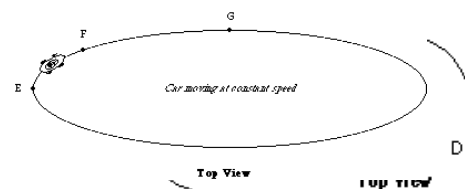


Student#:

NAME: ,

**Part I:**

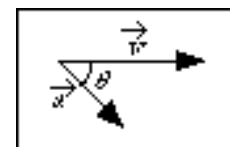
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: g</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>radial acceleration so the acceleration vector points to center</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>magnitude is not changing, only direction</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>magnitude is not changing, only direction</b></p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

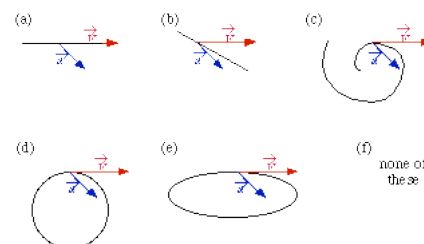


Q12. The object at this instant is: **moving at constant speed**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **bc**

Q14. Explain.

END OF RESPONSE

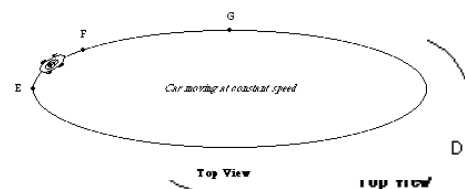


Student#:

NAME: ,

**Part I:**

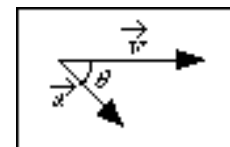
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>e</b></p> <p>Q5: The acceleration at point F: <b>e</b></p> <p>Q6: The acceleration at point G: <b>f</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. Each time the speed is constant, but there is a direction change each time, thus the acceleration is curved.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. If there is no change speed, constant speed, then the only change magnitude is equal.</p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>All are equal, constant speed.</b></p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

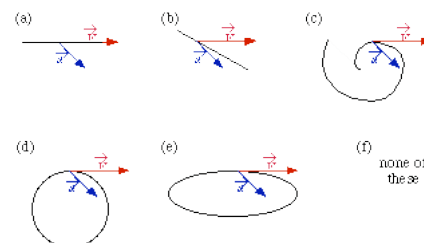


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **bc**

Q14. Explain. The direction is going to change equally over the time period as the angles are constant and the magnitude is constant.

END OF RESPONSE

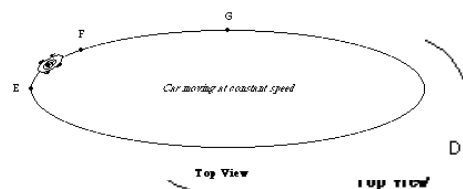


Student#:

NAME: ,

**Part I:**

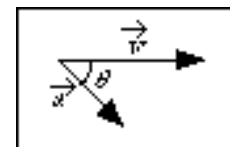
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



Q4: The acceleration at point E: f	Point E:
Q5: The acceleration at point F: b	(a) E [zero] (b) E (c) E (d) E (e) E
Q6: The acceleration at point G: g	(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other
Q7: Explain how you knew which acceleration vector to choose for each point. Because it has a constant velocity and is moving in a circle the acceleration vector points towards the center of the circle.	
Q8: At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude	Point F:
Q9: Explain. It's moving at a constant velocity around a roughly circular track, I don't believe there are any variables that would change the magnitude of the acceleration of the car. If the track weren't circular and at some points it turned more sharply, that might make a difference.	(a) F [zero] (b) F (c) F (d) F (e) F (f) F
Q10: At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude	(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other
Q11: Explain. Same as above.	Point G:
	(a) G [zero] (b) G (c) G
	(d) G (e) G (f) G
	(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

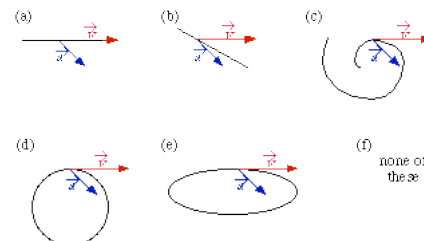


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **bc**

Q14. Explain. I think that under the circumstances that I was given the vectors would tend to display these results.

END OF RESPONSE

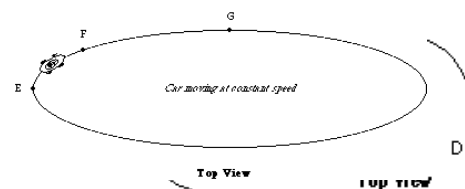


Student#:

NAME: ,

**Part I:**

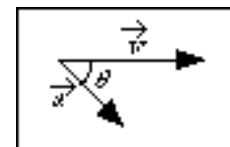
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>F</b></p> <p>Q5: The acceleration at point F: <b>G</b></p> <p>Q6: The acceleration at point G: <b>G</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>It accelerates in a somewhat circular motion, so the car tries to accelerate towards some central spot.</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>E</b></p> <p>Q9. Explain. <b>Because it is furthest from the central point, it must accelerate more to sustain the speed.</b></p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>G</b></p> <p>Q11. Explain. <b>Because it is almost straight here, it needs to accelerate less.</b></p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

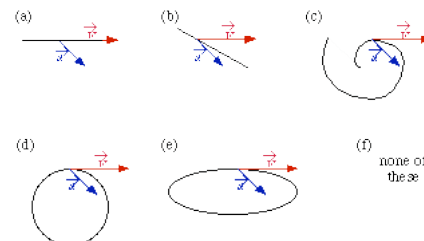


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **bcd**

Q14. Explain. **Down and right = turn.**

**END OF RESPONSE**

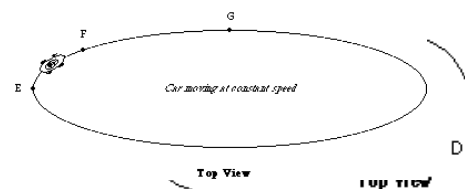


Student#:

NAME: ,

**Part I:**

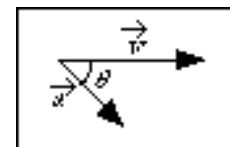
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: b</p> <p>Q5: The acceleration at point F: c</p> <p>Q6: The acceleration at point G: d</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. Again, I estimated the slope of the tangent lines at each of the points to get the direction.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. Since the speed is constant the entire time, there is no acceleration.</p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. Again, since the car is moving at a constant speed, there is no acceleration the entire time.</p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

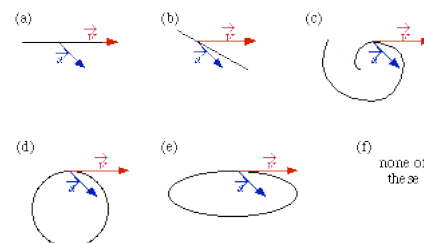


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **bcd**

Q14. Explain. If the acceleration is going in a downwards motion, I don't think the object would be moving in a straight line. Also I don't think if the angle remained constant, that it could create an oval track.

END OF RESPONSE

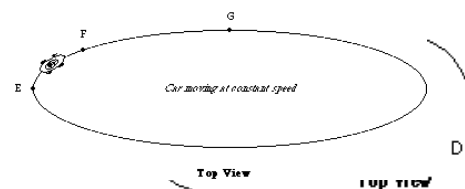


Student#:

NAME: ,

**Part I:**

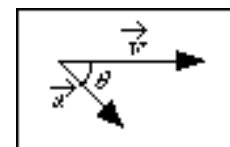
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: f</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. See how velocity changes</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. Direction changes the most</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. Direction changes the least</p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

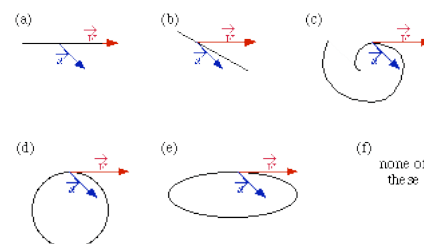


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **bcde**

Q14. Explain. The change direction in the direction of acceleration (kinda)

END OF RESPONSE

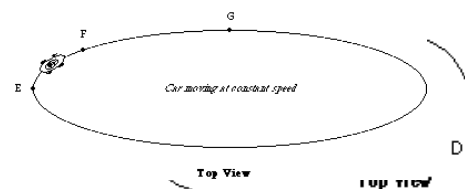


Student#:

NAME: ,

**Part I:**

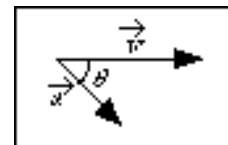
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>b</b></p> <p>Q5: The acceleration at point F: <b>c</b></p> <p>Q6: The acceleration at point G: <b>g</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>the change in direction, the path to be travelled on</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>E</b></p> <p>Q9. Explain. <b>at that point the car makes a sharp turn at the edge of the ellipse</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>G</b></p> <p>Q11. Explain. <b>G has the most relatively flat angle of turning</b></p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

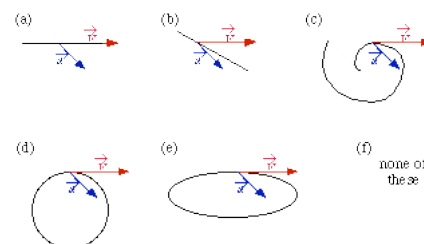
The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **bcde**

Q14. Explain. **b is possible since it is only a straight line, the resultant vector of v and a accomplish this, d, and e are possible if a changes during it's path of travel**



END OF RESPONSE

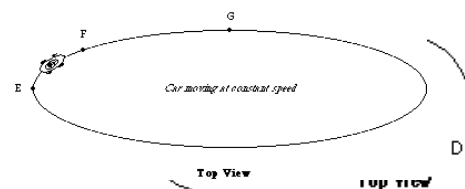


Student#:

NAME: ,

**Part I:**

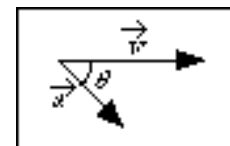
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: a</p> <p>Q5: The acceleration at point F: a</p> <p>Q6: The acceleration at point G: a</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. Since the car is traveling at a constant speed around the track, as stated in the problem, it is never accelerating, therefore the acceleration at any point is equal to zero.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. The acceleration is always zero, so all magnitudes are equal to zero.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. All points have magnitude zero, so they are all the same.</p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

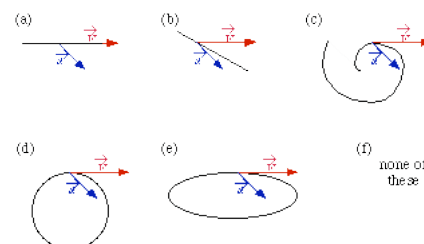
The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **bcde**

Q14. Explain. Because they all start out going in some direction between the two vectors.



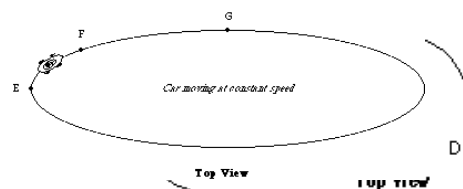
END OF RESPONSE

Student#:

NAME: ,

**Part I:**

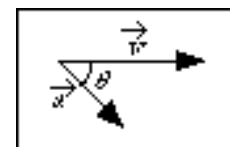
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: a</p> <p>Q5: The acceleration at point F: a</p> <p>Q6: The acceleration at point G: a</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. It is at constant speed, so the acceleration is 0.</p>	<p>Point E:</p> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <p>(a) E [zero]</p> <p>(b) E</p> <p>(c) E</p> <p>(d) E</p> <p>(e) E</p> </div> <div style="width: 50%;"> <p>(f) E</p> <p>(g) E</p> <p>(h) into ground (into page)</p> <p>(i) up from ground (out of page)</p> <p>(j) other</p> </div> </div>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. They are all equal to 0.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. They are all equal to 0.</p>	<p>Point F:</p> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <p>(a) F [zero]</p> <p>(b) F</p> <p>(c) F</p> <p>(d) F</p> <p>(e) F</p> <p>(f) F</p> </div> <div style="width: 50%;"> <p>(g) F</p> <p>(h) F</p> <p>(i) into ground (into page)</p> <p>(j) up from ground (out of page)</p> <p>(k) other</p> </div> </div> <p>Point G:</p> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <p>(a) G [zero]</p> <p>(b) G</p> <p>(c) G</p> <p>(d) G</p> <p>(e) G</p> <p>(f) G</p> </div> <div style="width: 50%;"> <p>(g) G</p> <p>(h) G</p> <p>(i) into ground (into page)</p> <p>(j) up from ground (out of page)</p> <p>(k) other</p> </div> </div>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

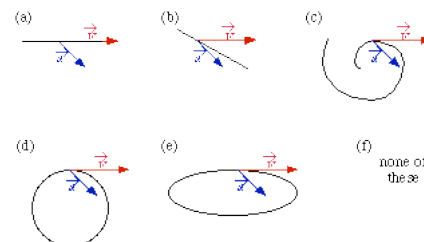


Q12. The object at this instant is: slowing down

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. bd

Q14. Explain. The acceleration is causing the velocity to turn in its direction.

END OF RESPONSE

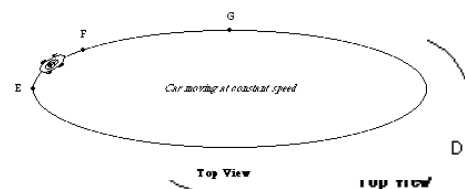


Student#:

NAME: ,

**Part I:**

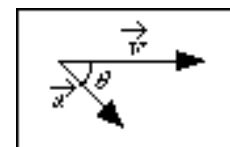
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>B</b></p> <p>Q5: The acceleration at point F: <b>C</b></p> <p>Q6: The acceleration at point G: <b>C</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>since</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>they all have equal magnitude because it says the car moves in a constant velocity meaning there is no change in velocity so the acceleration would be the same for all of them</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>same reasoning as previous question</b></p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

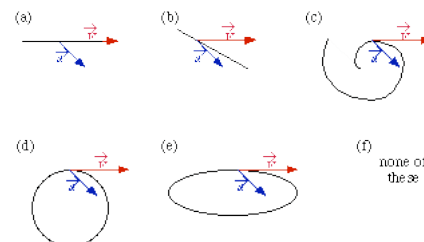


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **bd**

Q14. Explain.

END OF RESPONSE

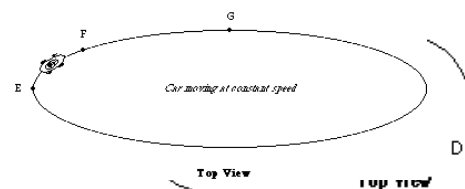


Student#:

NAME: ,

**Part I:**

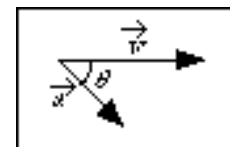
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: a</p> <p>Q5: The acceleration at point F: a</p> <p>Q6: The acceleration at point G: a</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. It was given that the car has a constant speed. So, therefore, its acceleration vector would be 0 at all points.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. It was given that the car has a constant speed. So, therefore, its acceleration vector would be 0 at all points which implies that the magnitude of acceleration is equal at all points.</p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. It was given that the car has a constant speed. So, therefore, its acceleration vector would be 0 at all points which implies that the magnitude of acceleration is equal at all points.</p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

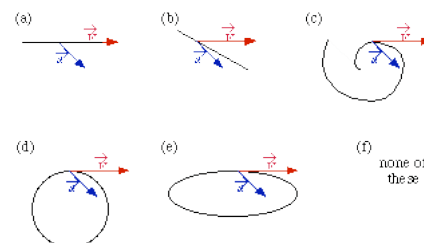


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **bd**

Q14. Explain. The car has a velocity vector that faces east. The acceleration vector points southeast. Therefore, the object must be traveling in a linear direction toward the southeast, or in a circular pattern.

END OF RESPONSE

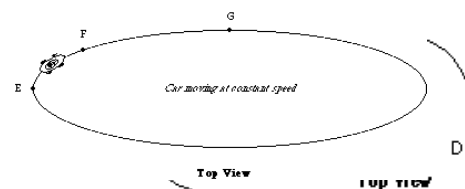


Student#:

NAME: ,

**Part I:**

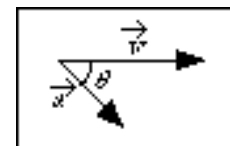
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: c</p> <p>Q5: The acceleration at point F: c</p> <p>Q6: The acceleration at point G: d</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. I seem to remember that an object that is going in a circle wants to go in a straight line so I just chose the tangent lines as the vectors.</p>	<p>Point E:</p> <p>into ground (into page)    up from ground (out of page)    other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? F</p> <p>Q9. Explain. They seem to have the most change in their direction.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. At this point it seemed to some what flat line for a moment before it changed direction again.</p>	<p>Point F:</p> <p>into ground (into page)    up from ground (out of page)    other</p> <p>Point G:</p> <p>into ground (into page)    up from ground (out of page)    other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

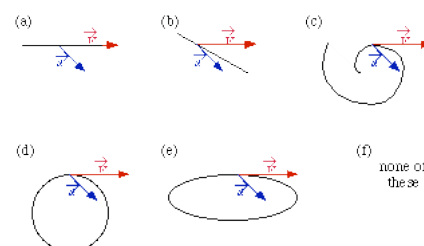


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **bd**

Q14. Explain. I wasn't sure if they ment that it always has the same vectors with respect to the object or to the viewer so I chose D if respect to viewer and B if respect to the object.

END OF RESPONSE

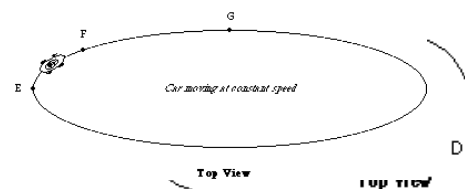


Student#:

NAME: ,

**Part I:**

A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



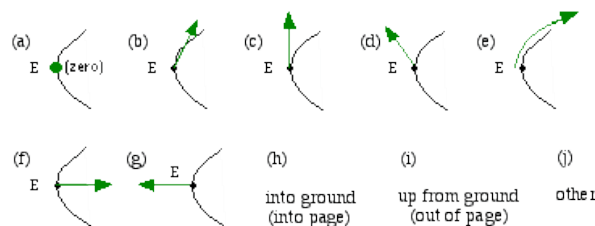
Q4: The acceleration at point E: b

Q5: The acceleration at point F: b

Q6: The acceleration at point G: c

Q7. Explain how you knew which acceleration vector to choose for each point. The speed is constant so the only change in velocity comes with its direction. I estimated the directions of vectors right before and at the point give, and took the difference between the two to find the acceleration.

Point E:



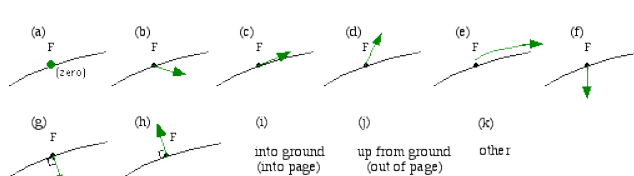
Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E

Q9. Explain. At this point, the car is changing more direction per second, so the acceleration must be the greatest.

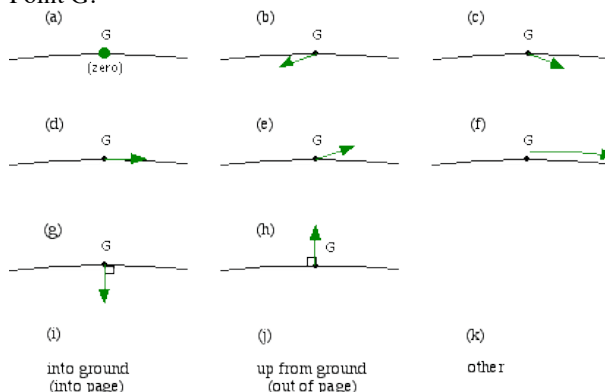
Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G

Q11. Explain. The flatness on the top of the ellipse has less change in direction, so the difference would be less, thus the acceleration smaller.

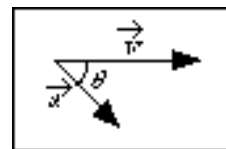
Point F:



Point G:

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

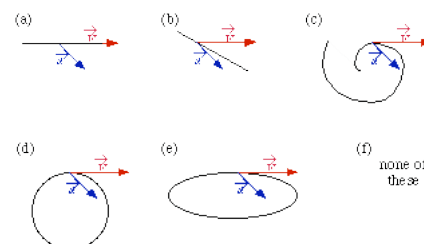


Q12. The object at this instant is: slowing down

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. bd

Q14. Explain. Since the acceleration is constant, the object must be traveling in with the same change in direction all of the time. This means it is either traveling in a perfect circle or in a line.

END OF RESPONSE

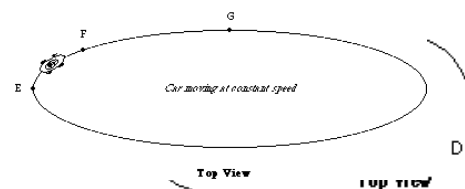


Student#:

NAME: ,

**Part I:**

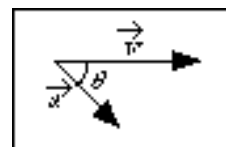
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: g</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. Since the car is moving on the circular track at the constant speed, there must be an acceleration that keeps the car in the circular motion. And that acceleration must be perpendicular to the car's direction since the car is at constant speed.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. E, because that's where the car made a sharpest turn and it requires more acceleration in order to make a sharper turn.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. G, because that's where the course is almost straight and it requires less acceleration in that case.</p>	<p>Point F:</p> <p>Point G:</p>

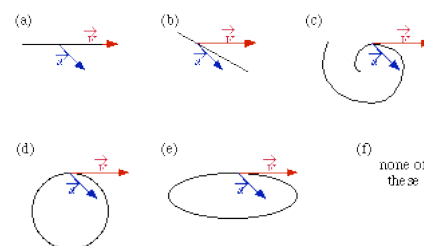
**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **bde**



*Pretest #2 (M2D), Autumn 2003*

*University of Colorado, Boulder*

Q14. Explain. since the

*END OF RESPONSE*

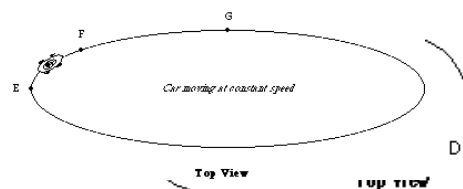


Student#:

NAME: ,

**Part I:**

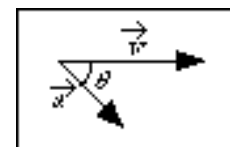
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>A</b></p> <p>Q5: The acceleration at point F: <b>A</b></p> <p>Q6: The acceleration at point G: <b>A</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>Because the speed will be constant the acceleration will be zero.</b></p>	<p>Point E:</p> <p>(a) E [zero] (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>Like I said the all will be zero because the speed is constant.</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>They all will be zero.</b></p>	<p>Point F:</p> <p>(a) F [zero] (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G [zero] (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

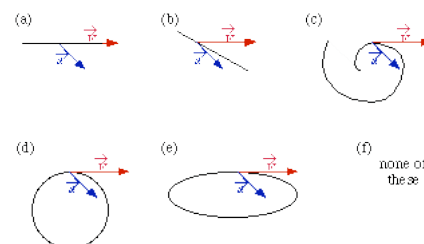


Q12. The object at this instant is: **slowing down**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **bde**

Q14. Explain. **In all honesty it was a guess, but I think that following those figures the the given conditions will be matched.**

**END OF RESPONSE**

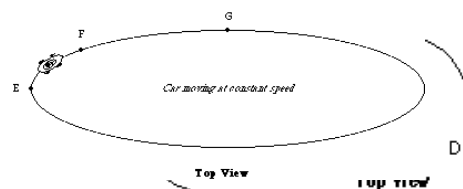


Student#:

NAME: ,

**Part I:**

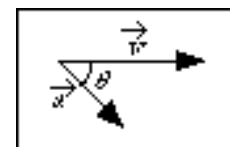
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: a</p> <p>Q5: The acceleration at point F: a</p> <p>Q6: The acceleration at point G: a</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. constant speed so the the acceleration is zero</p>	<p>Point E:</p> <p>(a) E [zero] (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. the car is moving at a constant speed</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. the car is moving at a constant speed</p>	<p>Point F:</p> <p>(a) F [zero] (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G [zero] (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

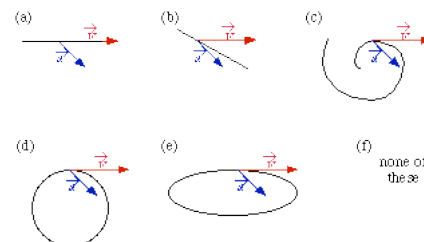


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **bde**

Q14. Explain.

END OF RESPONSE

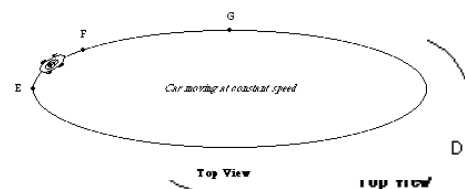


Student#:

NAME: ,

**Part I:**

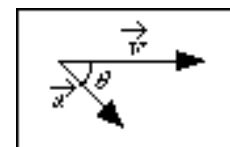
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>f</b></p> <p>Q5: The acceleration at point F: <b>b</b></p> <p>Q6: The acceleration at point G: <b>g</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>it accelerateds toward the center</b></p>	<p>Point E:</p> <p>(a) E [zero] (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>E and G</b></p> <p>Q9. Explain. <b>it has the strongest pull towards the center</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>F</b></p> <p>Q11. Explain. <b>it is venturing out from the center a little</b></p>	<p>Point F:</p> <p>(a) F [zero] (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G [zero] (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

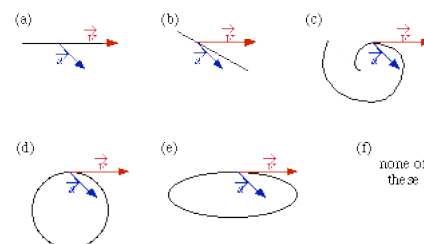


Q12. The object at this instant is: **cannot tell from this information**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **bde**

Q14. Explain. **because the follow the acceleration**

**END OF RESPONSE**

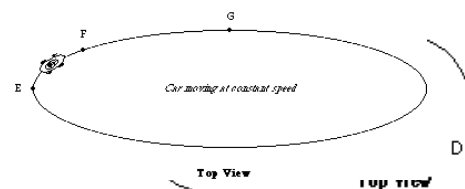


Student#:

NAME: ,

**Part I:**

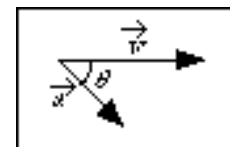
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: b</p> <p>Q5: The acceleration at point F: b</p> <p>Q6: The acceleration at point G: d</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. The acceleration vector would be in the direction that the car is attempting to change to.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? G</p> <p>Q9. Explain. Acceleration is greatest when the velocity and acceleration vectors are in the same direction.</p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? E</p> <p>Q11. Explain. The acceleration vector and velocity vectors have the largest angle of separation here, meaning the car is not accelerating straight forward.</p>	<p>Point G:</p>

**Part II:**

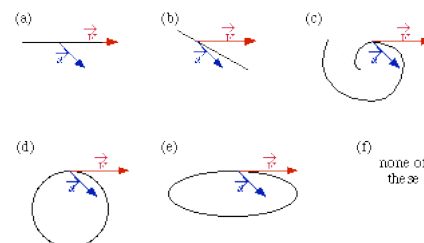
The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: **slowing down**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **bde**

Q14. Explain. They all represent possible outcomes to the from the direction of acceleration.



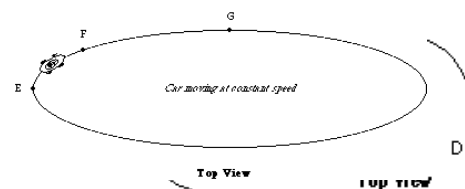
END OF RESPONSE

Student#:

NAME: ,

**Part I:**

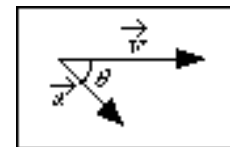
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: c</p> <p>Q5: The acceleration at point F: c</p> <p>Q6: The acceleration at point G: d</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. Pointing in the direction of movement.</p>	<p>Point E:</p> <p>(a) E [zero] (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. At the beginning of this problem it states the speed is constant meaning there is no acceleration.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. At the beginning of this problem it states the speed is constant meaning there is no acceleration.</p>	<p>Point F:</p> <p>(a) F [zero] (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G [zero] (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

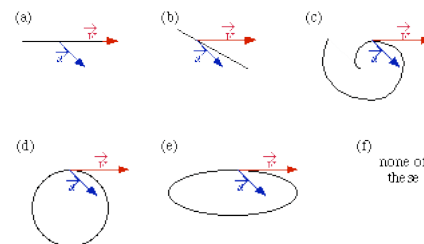
The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: cannot tell from this information

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. be

Q14. Explain. They are moving in the direction of both arrow depending on the magnitude.



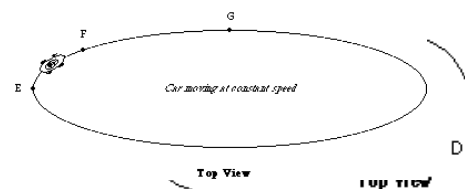
END OF RESPONSE

Student#:

NAME: ,

**Part I:**

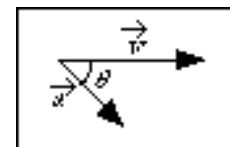
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: g</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. Since the moving path lies on a circular form, we assume the directions of the acceleration are toward the center of the circle.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. Because the speed is constant, only the direction is changing about the acceleration.</p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. They all have equal magnitudes.</p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

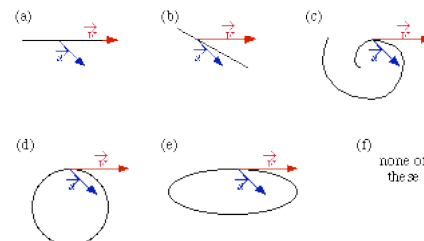


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **be**

Q14. Explain.

END OF RESPONSE

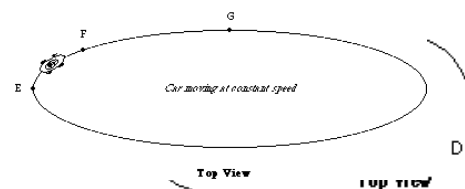


Student#:

NAME: ,

**Part I:**

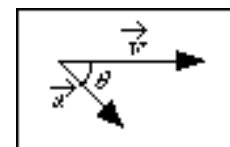
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: a</p> <p>Q5: The acceleration at point F: a</p> <p>Q6: The acceleration at point G: a</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>The car is at a constant velocity, therefore the acceleration is 0.</b></p>	<p>Point E:</p> <p>(a) E [zero] (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>They are all zero.</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>They are all zero.</b></p>	<p>Point F:</p> <p>(a) F [zero] (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G [zero] (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

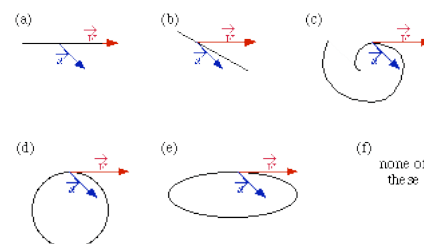


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **be**

Q14. Explain. **An object always accelerates towards the center in case E, it is accelerating towards a focal point.**

END OF RESPONSE

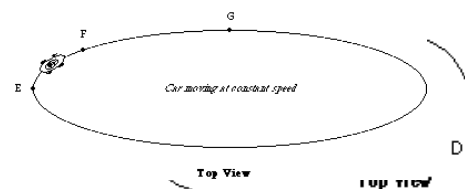


Student#:

NAME: ,

**Part I:**

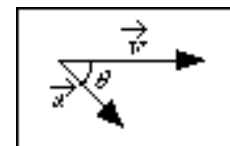
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: g</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. It is the one that is perpendicular to the curve, pointing in. This is because if it were pointing any other direction, the car would be changing speed.</p>	<p>Point E:</p> <p>into ground (into page)    up from ground (out of page)    other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. At point E, the curvature of the oval is the greatest, so the car is changing velocity more quickly than at the other points, so the acceleration is the greatest.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. At point G, the curvature of the oval is the lowest, so the car is changing velocity more slowly than at the other points, so the acceleration is the lowest.</p>	<p>Point F:</p> <p>into ground (into page)    up from ground (out of page)    other</p> <p>Point G:</p> <p>into ground (into page)    up from ground (out of page)    other</p>

**Part II:**

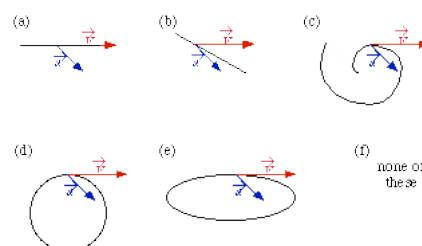
The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**

Q14. Explain. I chose the spiral, because if it cannot be a straight line, because the acceleration vector is going a different direction than the velocity, and cannot be a circle or ellipse, because the acceleration is not perpendicular to the velocity. This leaves C.



END OF RESPONSE

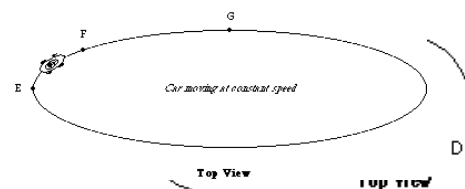


Student#:

NAME: ,

**Part I:**

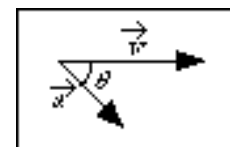
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: g</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. It is perpendicular to the velocity</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. Since the car is moving at the same speed at every second the magnitude of the acceleration will be the same everywhere.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. Since the car is moving at the same speed at every second the magnitude of the acceleration will be the same everywhere.</p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

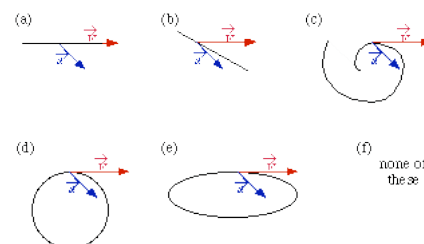


Q12. The object at this instant is: slowing down

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. c

Q14. Explain. Since A is not perpendicular the object will not be in uniform motion

END OF RESPONSE

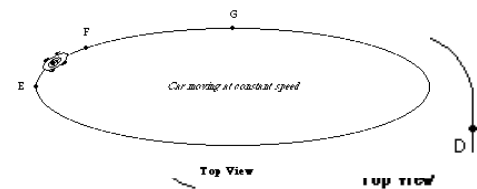


Student#:

NAME: ,

**Part I:**

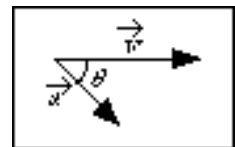
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: f</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. The acceleration always points towards the center.</p>	<p>Point E:</p> <p>into ground (into page) up from ground (out of page) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. The radius of curvature is the smallest and the velocity is the same, so the acceleration is greater.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. Since this area had the largest radius of curvature, the acceleration is the least.</p>	<p>Point F:</p> <p>into ground (into page) up from ground (out of page) other</p> <p>Point G:</p> <p>into ground (into page) up from ground (out of page) other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

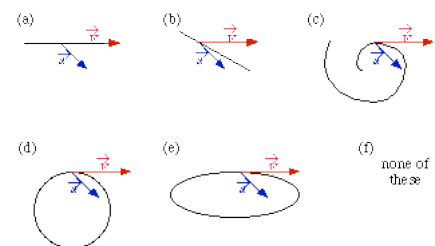


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**

Q14. Explain. I eliminated figure a and b because if the object were to travel in a straight line, then the acceleration and the velocity would need to point the same way. D was eliminated because the acceleration needs to point towards the center of the circle in order for it to maintain a circular path. The same goes for e. Since the acceleration points at an angle it will make a spiral shape!

END OF RESPONSE

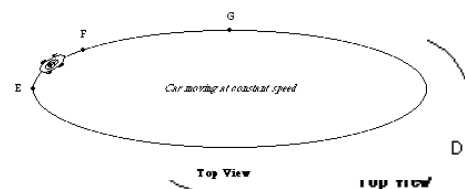


Student#:

NAME: ,

**Part I:**

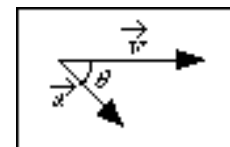
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: g</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. The object follows an elliptical path, therefore the acceleration vector must be towards the center.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. At the point E the car makes a greater curve when compared to the other points, therefore its acceleration must be the greatest</p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. At the point G the curve is minimum with respect to the entire motion, therefore the acceleration towards the center of the path must be the smallest</p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

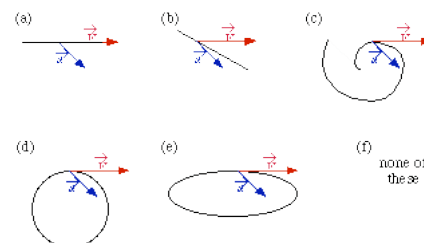


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**

Q14. Explain. First of all if the angle between the velocity and acceleration is constant then, the object cannot move in a straight line. The acceleration does not point to the center therefore the motion is not going to be circular like d or elliptical like e. The motion like c seems to be the best case

END OF RESPONSE

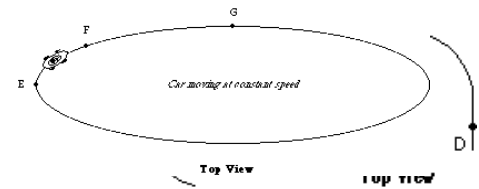


Student#:

NAME: ,

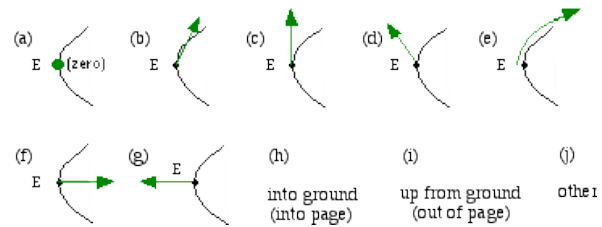
**Part I:**

A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



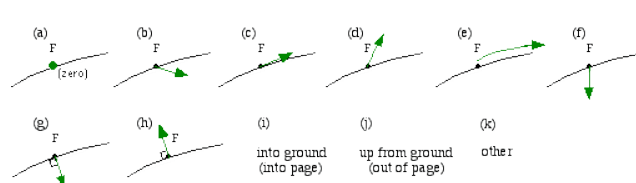
Q4: The acceleration at point E: f  
 Q5: The acceleration at point F: b  
 Q6: The acceleration at point G: a  
 Q7. Explain how you knew which acceleration vector to choose for each point. ... For point E .. i know that it is a curve so the acceleration always point into the circle.. for F.. since it is getting out to the circle i presume that is there is another kind of acceleration to get it moving towards the right more than down. and for the last one.. i knew that the acceleration is 0 because @ that point the car is moving tangent to the curve which is a straight line.

Point E:



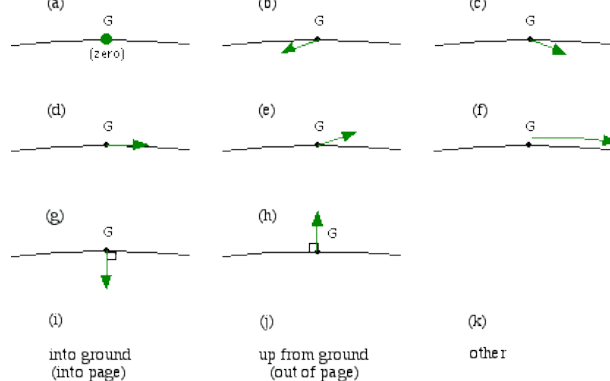
Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E  
 Q9. Explain. Because since it not acceleration in speed, but just the direction and it is turning at a deeper angle .. that why it should have more of an acceleration.

Point F:

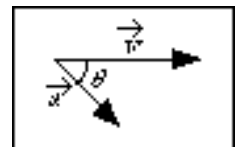


Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G  
 Q11. Explain. Since this part is a straight line.. and the speed is constant there is no acceleration.

Point G:

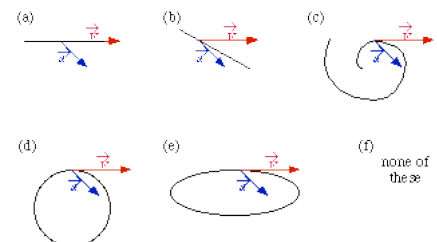
**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**



*Pretest #2 (M2D), Autumn 2003*

*University of Colorado, Boulder*

Q14. Explain. Since .. the accerlation is more than the velocity. .. ?

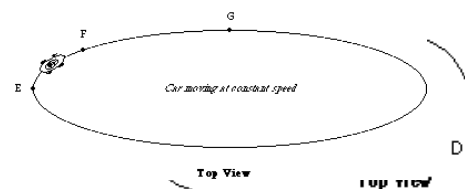
*END OF RESPONSE*

Student#:

NAME: ,

**Part I:**

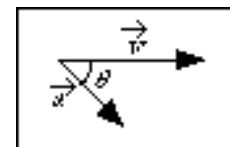
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: g</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. The acceleration vector points in, towards the 'curve', because the velocity is changing.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. I'm not sure on this one. I think magnitude of the acceleration is greatest at this point because it is the 'steepest' and the velocity has to change the most at that point.</p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. This is because, this is the 'flattest' part of the curve. The acceleration means the change in velocity, and the magnitude of the velocity is unchanging (constant speed), the direction of the velocity is changing the least at this point.</p>	<p>Point G:</p>

**Part II:**

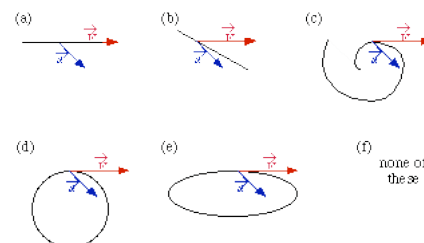
The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: **unanswered**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**

Q14. Explain. I chose this figure, because the acceleration pulls the velocity vector in a certain direction. I knew a, b, and d were not correct because the acceleration vector did not pull the velocity vector in the correct direction. e was not correct because the acc vector should be pointing towards the middle of the oval.



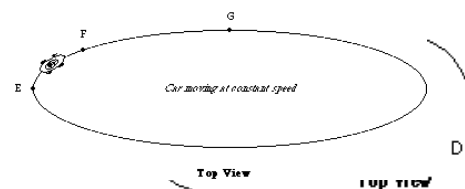
END OF RESPONSE

Student#:

NAME: ,

**Part I:**

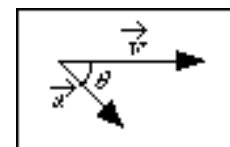
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: b</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. it points towards the center of the arc</p>	<p>Point E:</p> <p>(a) E (zero) (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. the change in the curve is greatest at point eie it makes a sharper turn</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. the change in the curve is least at point gie it makes a shallower turn</p>	<p>Point F:</p> <p>(a) F (zero) (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G (zero) (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

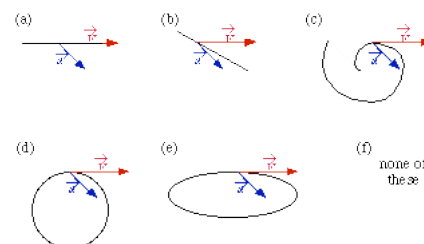
The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. c

Q14. Explain. the curve will move outwards because the acceleration adds to velocity, it is not closed it will be a curve because the acceleration is in a diff direction that +-v



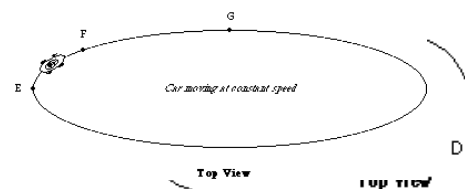
END OF RESPONSE

Student#:

NAME: ,

**Part I:**

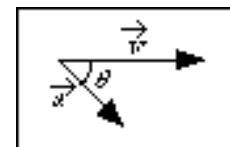
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>g</b></p> <p>Q5: The acceleration at point F: <b>h</b></p> <p>Q6: The acceleration at point G: <b>h</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>Because the car is travelling at a constant speed, the only acceleration is due to the turning of the car.</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>E</b></p> <p>Q9. Explain. <b>The car is turning the sharpest at this point.</b></p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>G</b></p> <p>Q11. Explain. <b>The car is barely turning at this point.</b></p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

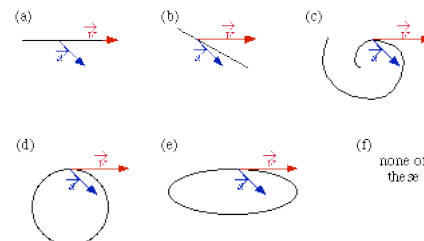


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**

Q14. Explain.

END OF RESPONSE



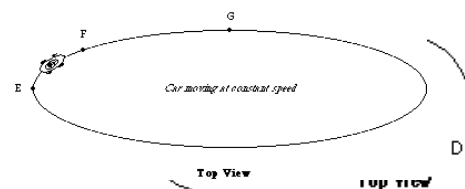


Student#:

NAME: ,

**Part I:**

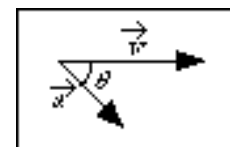
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>F</b></p> <p>Q5: The acceleration at point F: <b>G</b></p> <p>Q6: The acceleration at point G: <b>G</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>Speed is constant, but the velocity eventually changes direction--thus there must be some type of acceleration driving the change in direction. Again, I chose the acceleration that points into the curve (I think it's centripetal force, but not sure?)</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>E</b></p> <p>Q9. Explain. <b>It is a tighter curve -- requires more force/acceleration to go around</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>G</b></p> <p>Q11. Explain. <b>The track is closest to being flat-- does not require as much acceleration to go straight as it does a tight curve</b></p>	<p>Point F:</p> <p>Point G:</p>

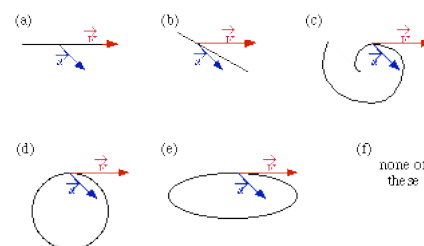
**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: **slowing down**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**



Q14. Explain. I chose the circle because it would make sense for acceleration to remain at the a constant angle to velocity going around the circle--takes all points of the curve are equally 'curve'. This is not true for (e).

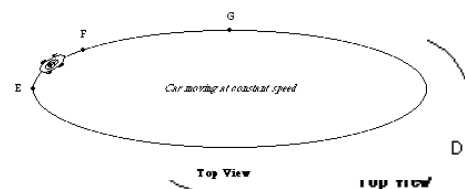
*END OF RESPONSE*

Student#:

NAME: ,

**Part I:**

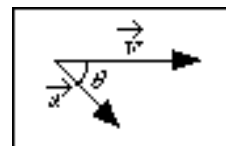
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: b</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>Acceleration around a curve/circle/ellipse while traveling at constant velocity is always towards the center of the curve/circle/ellipse</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. <b>this is where the curve is the most (greatest rate of change) therefore greatest angular accel.</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. <b>This is where the curve is the least/ smallest rate of change, giving the lowest angular accel.</b></p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

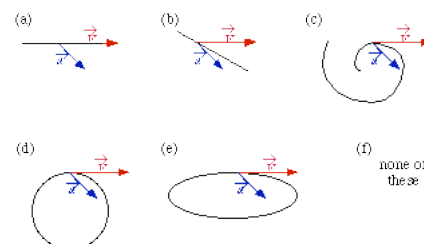


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**

Q14. Explain. **Acceleration is constant, while the velocity is increasing.**

**END OF RESPONSE**

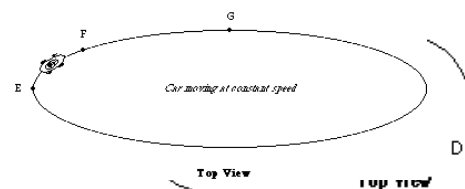


Student#:

NAME: ,

**Part I:**

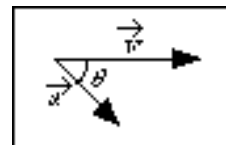
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>e</b></p> <p>Q5: The acceleration at point F: <b>e</b></p> <p>Q6: The acceleration at point G: <b>f</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>acc in direction they are moving</b></p>	<p>Point E:</p> <p>(a) E (zero) (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>E</b></p> <p>Q9. Explain. <b>farthest turning</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>G</b></p> <p>Q11. Explain. <b>least curve</b></p>	<p>Point F:</p> <p>(a) F (zero) (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G (zero) (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

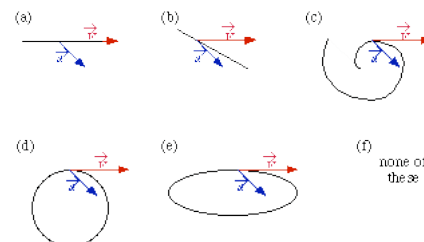


Q12. The object at this instant is: **unanswered**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**

Q14. Explain. **accelerating in a growing spiral**

END OF RESPONSE

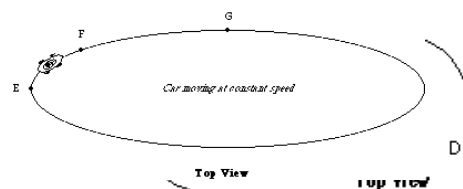


Student#:

NAME: ,

**Part I:**

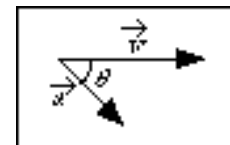
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: c</p> <p>Q5: The acceleration at point F: c</p> <p>Q6: The acceleration at point G: d</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>tangent to path</b></p>	<p>Point E:</p> <p>(a) E (zero) (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>E</b></p> <p>Q9. Explain. <b>it has to curve the greatest</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>G</b></p> <p>Q11. Explain. <b>it has to curve the smallest</b></p>	<p>Point F:</p> <p>(a) F (zero) (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G (zero) (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

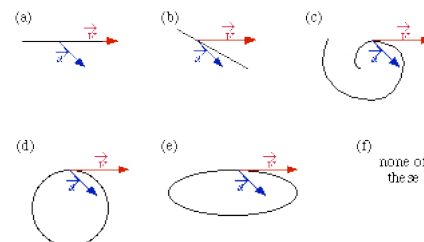


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**

Q14. Explain. **seemed like it would work**

END OF RESPONSE

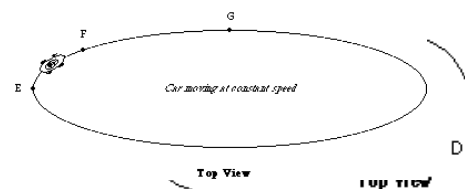


Student#:

NAME: ,

**Part I:**

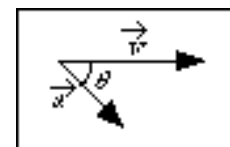
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: b</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. The car has to accelerate in the direction of the curve it is going to take.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. The car makes the greatest change in direction at this point, so it must have the greatest acceleration.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. The curve the car is taking does not have such a great change in direction.</p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

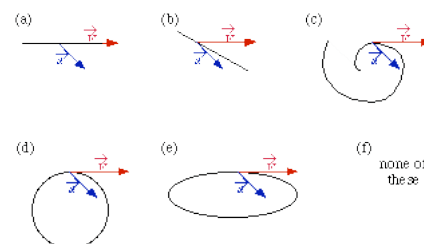


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**

Q14. Explain. **C** is the only graph where the direction of the acceleration is pointed to the center of the loop

END OF RESPONSE

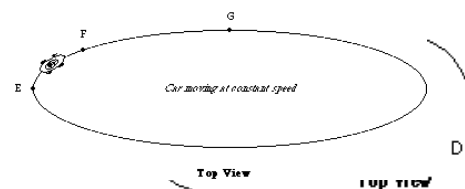


Student#:

NAME: ,

**Part I:**

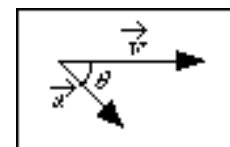
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: b</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. They point towards the center of the curve</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. It has a lot of work to do to pull the curve back the other way.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. It hardly has to alter the course of the car at all.</p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

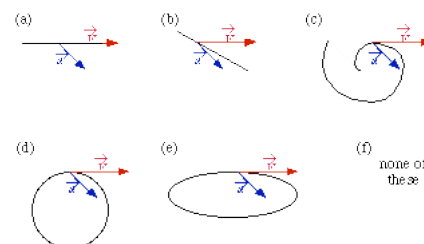
The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**

Q14. Explain. The acceleration is not pointing towards the center, which rules out a circle, and the acceleration changes for an ellipse, so the figure must spiral outwards.



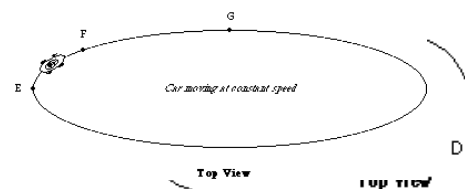
END OF RESPONSE

Student#:

NAME: ,

**Part I:**

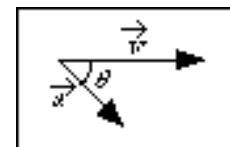
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: b</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. i chose the ones angled toward the middle, acceleration, i believe, is inward toward the central point of the curve.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. acceleration is greatest at point E because it has to do the most work to pull it back towards center.</p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. least amount of work done here at point of lowest curve.</p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

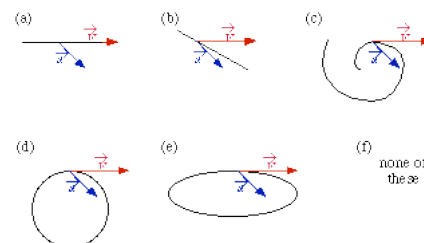


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. c

Q14. Explain. acceleration does not point to center, so it is not a circle, if the acceleration were to center it would be a circle, but with it angled off a little one gets drift, causing the shape of choice c.

END OF RESPONSE



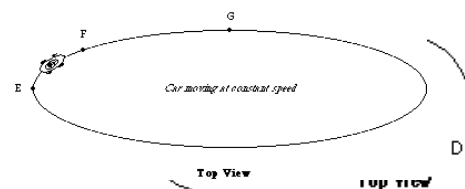


Student#:

NAME: ,

**Part I:**

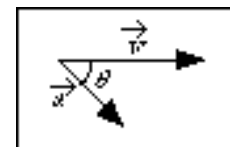
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: a</p> <p>Q5: The acceleration at point F: a</p> <p>Q6: The acceleration at point G: a</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <i>since the car is moving at a constant speed, all answers asking for accel. should be zero.</i></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <i>all have equal magnitude</i></p> <p>Q9. Explain. <i>they are all zero</i></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <i>all have equal magnitude</i></p> <p>Q11. Explain. <i>they are all zero</i></p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

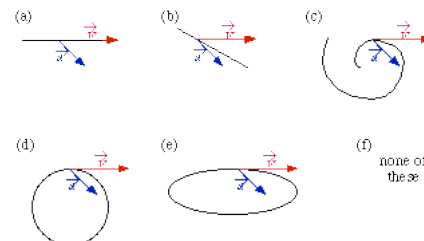


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**

Q14. Explain. **did not understand the question**

**END OF RESPONSE**

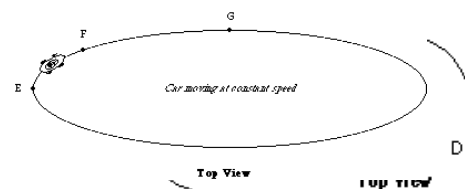


Student#:

NAME: ,

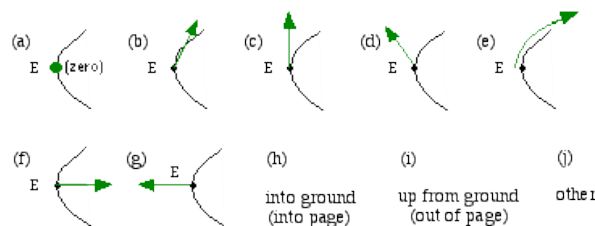
**Part I:**

A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



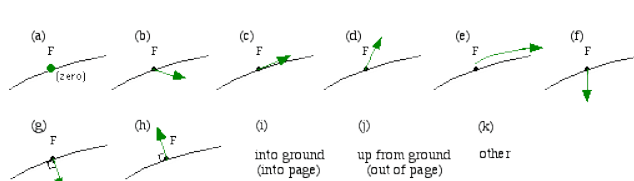
Q4: The acceleration at point E: **e**  
 Q5: The acceleration at point F: **f**  
 Q6: The acceleration at point G: **g**  
 Q7. Explain how you knew which acceleration vector to choose for each point. **even though the car is travelling at a constant speed acceleration is change in speed and direction, so it is accelerating in the direction it is turning, which was always to the right.**

Point E:

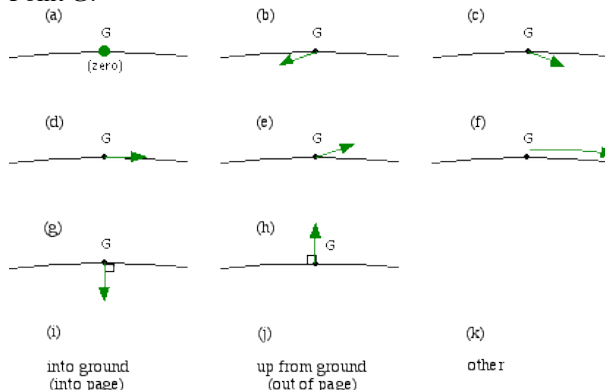


Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? **E**  
 Q9. Explain. **because the car has to turn at the tightest degree at point e, so the car will have to accelerate the most to stay on the track.**

Point F:



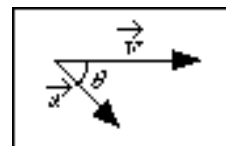
Point G:



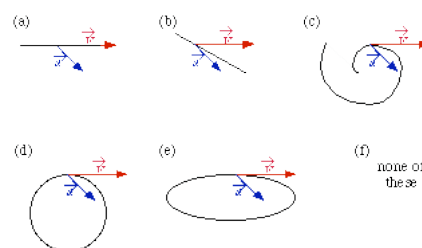
Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? **G**  
 Q11. Explain. **at point g it is turning the least, and so accelerating the least.**

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: **speeding up**  
 Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**  
 Q14. Explain. **I think it is accelerating in speed as well as direction which would create the spiral. if it is just direction it would be a circle, but for a circle it should accelerate perpendicular to the direction of travel**



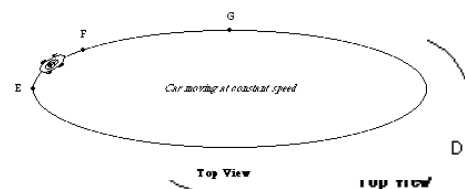
END OF RESPONSE

Student#:

NAME: ,

**Part I:**

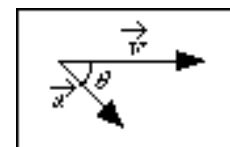
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: b</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. It's a circular motion, accelerations point toward the center.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? G</p> <p>Q9. Explain. Becasue mgnitude = <math>v^2/r</math>. At constant speed, the smaller the radius is, the larger the magnitude is.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? E</p> <p>Q11. Explain. vice versa from Q21.</p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

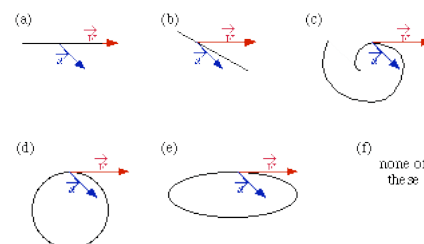
The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: cannot tell from this information

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. c

Q14. Explain. For a and b, the velocity and acceleration should have the same direction as the trajectory. D and E's accelerations should point toward the center.



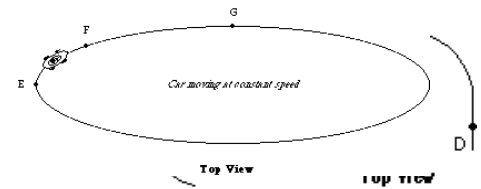
END OF RESPONSE

Student#:

NAME: ,

**Part I:**

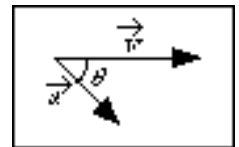
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: g</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. The acceleration here is angular and therefore will always be towards the center of the circle.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. The acceleration here will be the greatest because at point e, it is having to make the greatest change in direction. While the velocity remains constant, the car is accelerating inward in order to keep its circular path and it is having to make the most changes at point e, this makes it the place where the car accelerates the most.</p>	<p>Point F:</p>
<p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. At point g, the car is having to make the last amount of course changes to keep its circular path. Because of this, it is the place where the magnitude of the angular acceleration will be the least.</p>	<p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



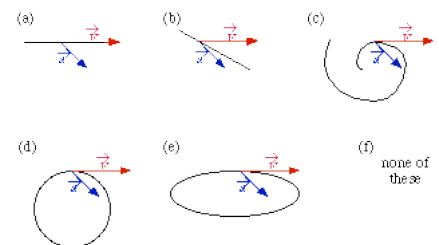
Q12. The object at this instant is: moving at constant speed

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. c

Q14. Explain. The path of the object wouldn't be a circle or a line because it is always accelerating, meaning that it is always changing its path. Therefore it will not be moving in a linear path, nor would the position ever overlap itself.

The spiral is the only figure showing constant acceleration.

END OF RESPONSE

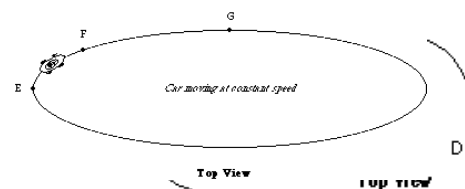


Student#:

NAME: ,

**Part I:**

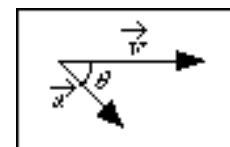
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: g</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. constant <math>v</math> so all <math>a</math> is only in the normal vector direction</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. this has the greatest curvature.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. smallest curvature, smallest change in velocity implies smallest <math>a</math></p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

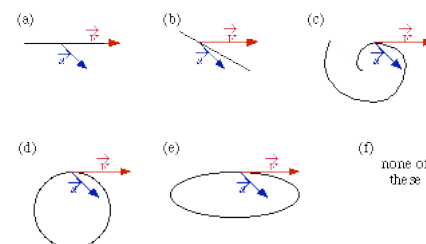


Q12. The object at this instant is: **unanswered**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. c

Q14. Explain. it will always have the same normal component. also, its speed will increase linearly. thus, this normal  $a$  will have a decreasing 'effect' on the path. object moves faster, less curvature

END OF RESPONSE

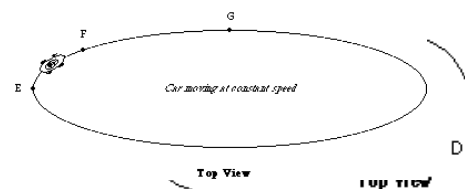


Student#:

NAME: ,

**Part I:**

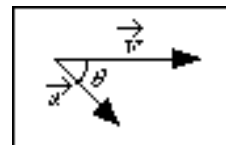
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>e</b></p> <p>Q5: The acceleration at point F: <b>e</b></p> <p>Q6: The acceleration at point G: <b>g</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>centripetal acceleration is along the path of travel.</b></p>	<p>Point E:</p> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <p>(a) E (zero)</p> <p>(b) E</p> <p>(c) E</p> <p>(d) E</p> <p>(e) E</p> </div> <div style="width: 50%;"> <p>(f) E</p> <p>(g) E</p> <p>(h) into ground (into page)</p> <p>(i) up from ground (out of page)</p> <p>(j) other</p> </div> </div>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>E</b></p> <p>Q9. Explain. <b>it is curving the most at this point.</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>G</b></p> <p>Q11. Explain. <b>least curvature.</b></p>	<p>Point F:</p> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <p>(a) F (zero)</p> <p>(b) F</p> <p>(c) F</p> <p>(d) F</p> <p>(e) F</p> <p>(f) F</p> </div> <div style="width: 50%;"> <p>(g) F</p> <p>(h) F</p> <p>(i) into ground (into page)</p> <p>(j) up from ground (out of page)</p> <p>(k) other</p> </div> </div> <p>Point G:</p> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <p>(a) G (zero)</p> <p>(b) G</p> <p>(c) G</p> <p>(d) G</p> <p>(e) G</p> <p>(f) G</p> </div> <div style="width: 50%;"> <p>(g) G</p> <p>(h) G</p> <p>(i) into ground (into page)</p> <p>(j) up from ground (out of page)</p> <p>(k) other</p> </div> </div>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

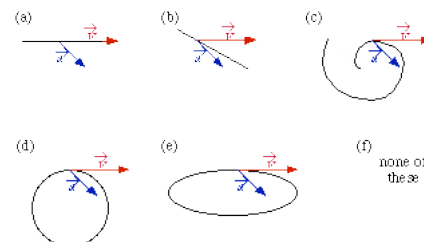


Q12. The object at this instant is: **cannot tell from this information**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**

Q14. Explain. **if the angle is constant then the acceleration will affect the speed less as it moves faster and will produce a spiral.**

END OF RESPONSE

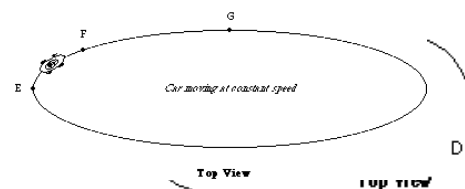


Student#:

NAME: ,

**Part I:**

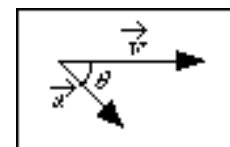
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: a</p> <p>Q5: The acceleration at point F: a</p> <p>Q6: The acceleration at point G: a</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. The car is moving at constant speed, so it's acceleration is zero.</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? all have equal magnitude</p> <p>Q9. Explain. Since the car is moving at constant speed, the acceleration at all points is zero.</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? all have equal magnitude</p> <p>Q11. Explain. Since the car is moving at constant speed, the acceleration at all points is zero.</p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

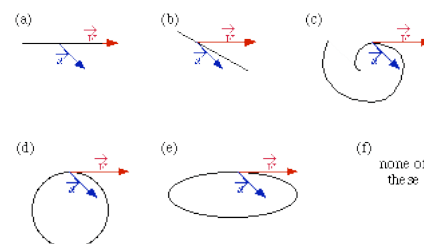


Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**

Q14. Explain. Only a spiral form of motion may result since theta is constant as is acceleration and acceleration is non-zero since velocity is non-zero and the vectors are drawn to scale.

END OF RESPONSE

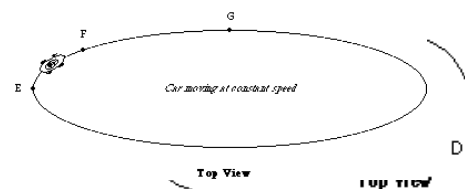


Student#:

NAME: ,

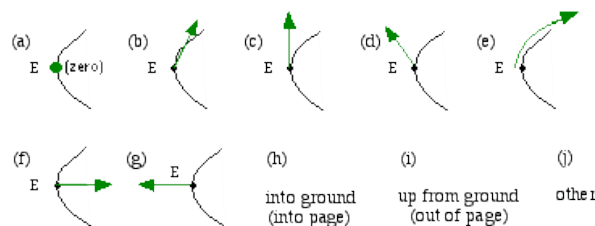
**Part I:**

A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.

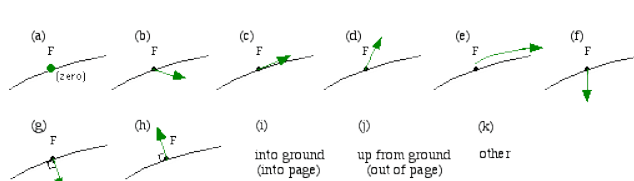
Q4: The acceleration at point E: **F**Q5: The acceleration at point F: **G**Q6: The acceleration at point G: **I**

Q7. Explain how you knew which acceleration vector to choose for each point. **Because the forward velocity is constant so the only acceleration is to the left or right. so its perpendicular to the velocity vector.**

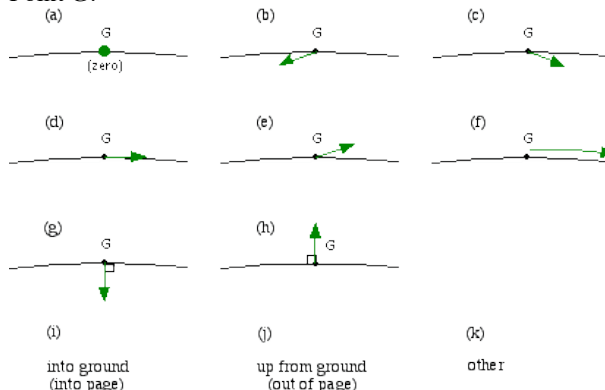
Point E:

Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? **E**Q9. Explain. **Because this is where the car is changing direction the fastest**Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? **G**Q11. Explain. **Because the change in direction is the least radical**

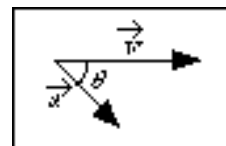
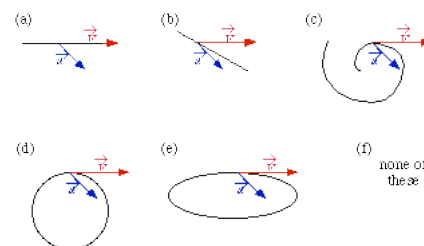
Point F:



Point G:

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

Q12. The object at this instant is: **speeding up**Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**Q14. Explain. **because it will speed up as it rolls so the shape wont be a circle, so it will create a spiral, and the direction will constantly change.****END OF RESPONSE**

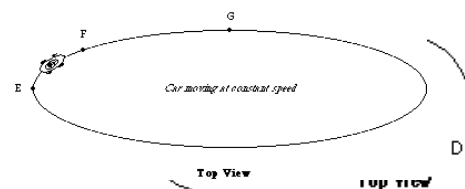


Student#:

NAME: ,

**Part I:**

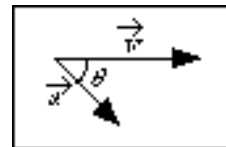
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: f</p> <p>Q5: The acceleration at point F: g</p> <p>Q6: The acceleration at point G: g</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. at a curve there is acceleration due to the fact that velocity is characterized by a direction, and the direction is changing. this acceleration is perpendicular to the velocity</p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? E</p> <p>Q9. Explain. this is where the greatest change in direction occurs</p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? G</p> <p>Q11. Explain. this is where the smallest change in direction occurs</p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

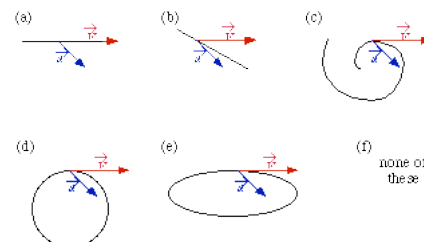


Q12. The object at this instant is: **unanswered**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**

Q14. Explain. it looks cool

END OF RESPONSE

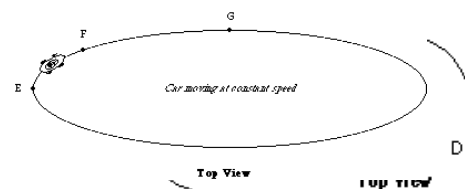


Student#:

NAME: ,

**Part I:**

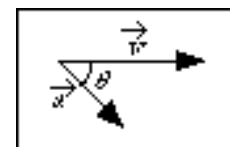
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: <b>A</b></p> <p>Q5: The acceleration at point F: <b>A</b></p> <p>Q6: The acceleration at point G: <b>A</b></p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>Since speed is constant, there cannot be any acceleration.</b></p>	<p>Point E:</p> <p>(a) E [zero] (b) E (c) E (d) E (e) E</p> <p>(f) E (g) E (h) into ground (into page) (i) up from ground (out of page) (j) other</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>The acceleration for each point is zero.</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>The acceleration for each point is zero.</b></p>	<p>Point F:</p> <p>(a) F [zero] (b) F (c) F (d) F (e) F (f) F</p> <p>(g) F (h) F (i) into ground (into page) (j) up from ground (out of page) (k) other</p> <p>Point G:</p> <p>(a) G [zero] (b) G (c) G</p> <p>(d) G (e) G (f) G</p> <p>(g) G (h) G (i) into ground (into page) (j) up from ground (out of page) (k) other</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

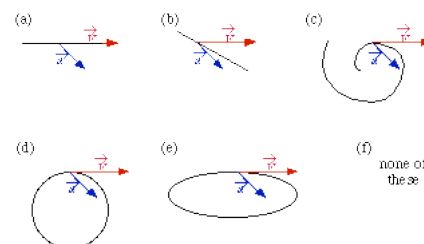


Q12. The object at this instant is: **slowing down**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**

Q14. Explain. **Acceleration will affect velocity enough over time that velocity will soon have no effect on the possible trajectory of the object.**

**END OF RESPONSE**

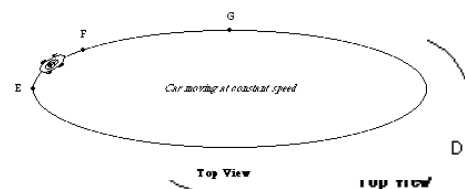


Student#:

NAME: ,

**Part I:**

A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



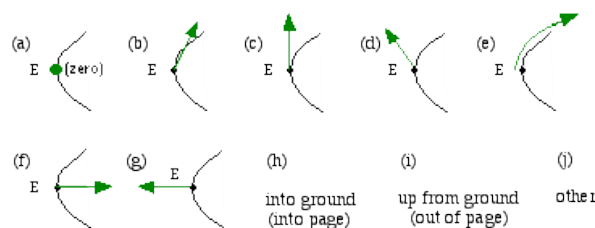
Q4: The acceleration at point E: a

Q5: The acceleration at point F: c

Q6: The acceleration at point G: a

Q7. Explain how you knew which acceleration vector to choose for each point. the car must decelerate into the curves and accelerate out of the curves, so at points inbetween, e and g, there is no acceleration, but at point f, out of curve e, the car is accelerating.

Point E:



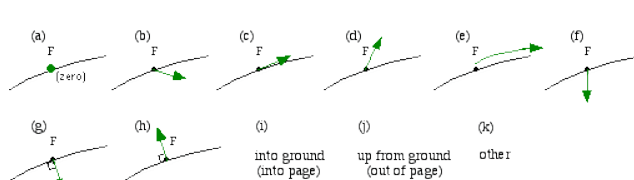
Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? F

Q9. Explain. the car is accelerating out of the curve.

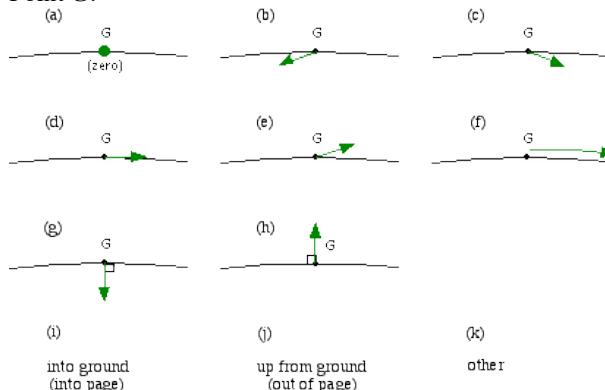
Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? E and G

Q11. Explain. at the peak of the curve the car has finished decelerating and is about to begin accelerating, so the instantaneous acceleration is zero.

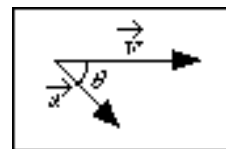
Point F:



Point G:

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.

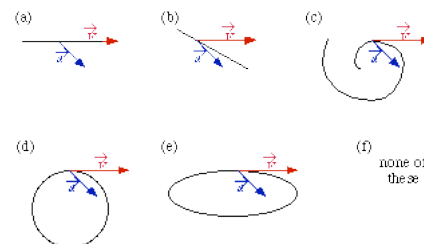


Q12. The object at this instant is: speeding up

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. c

Q14. Explain. the direction of acceleration causes the object to curve to the right, but as it increases speed it will move further and further so to path's radius will get bigger and bigger, creating a spiral.

END OF RESPONSE

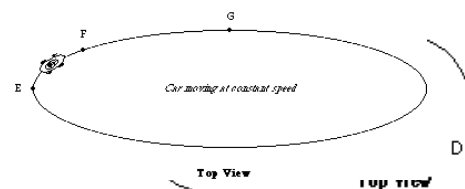


Student#:

NAME: ,

**Part I:**

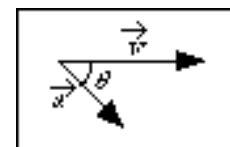
A car moves clockwise at constant speed around the track shown. (Note: This is not a strobe photograph.) For each of the following point, choose the figure that best indicates the direction of the acceleration of the car.



<p>Q4: The acceleration at point E: a</p> <p>Q5: The acceleration at point F: a</p> <p>Q6: The acceleration at point G: a</p> <p>Q7. Explain how you knew which acceleration vector to choose for each point. <b>There is no acceleration since the car is moving at constant speed.</b></p>	<p>Point E:</p>
<p>Q8. At which point(s) is the magnitude of the acceleration of the car the greatest? <b>all have equal magnitude</b></p> <p>Q9. Explain. <b>all are same since there are no acceleration at any point.</b></p> <p>Q10. At which point(s) is the magnitude of the acceleration of the car the smallest? <b>all have equal magnitude</b></p> <p>Q11. Explain. <b>all are same since there are no acceleration at any point.</b></p>	<p>Point F:</p> <p>Point G:</p>

**Part II:**

The figure shows the velocity and acceleration for an object at a given instant. Assume (1) the angle between the vectors is constant for all times and (2) the magnitude of the acceleration is constant.



Q12. The object at this instant is: **speeding up**

Q13. Choose from among the figures (at right) those that accurately describe a possible trajectory for the object. You may choose more than one figure. **c**

Q14. Explain. **because the velocity is bigger than acceleration, it would not be possible to go in a circle, and because the 2 are going in different direction, the trajectory cannot be a straight line. By elimination, c.**

**END OF RESPONSE**

