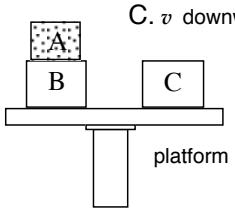
Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The force exerted on block C is the normal force and points opposite and against to the gravitational force. Thus, it points in the positive y direction.

Explain: **positive**

Work done on B by A: Work is done since the block is forced to move in the positive y direction, thus the work is positive.

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: Block A is pushing downward on block B but the net force of block B remains zero. Thus, no work is performed on block B by block A.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Since the platform is having to push against the masses of both blocks A and B when pushing against the surface of block B, it must exert more force on block B than it would have to on block C.

Explain: **positive**

\Work done on C by the platform: Even though the platform is no longer pushing upwards on the block at it rises, the platform still exerts a normal force on the block in the positive y direction.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Since the platform is not pulling on the block, but the block is moving downward, the force the block is experiencing must be in the negative y direction.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? The platform is slowing the block and having to push against it in the positive y direction resulting in a positive work.

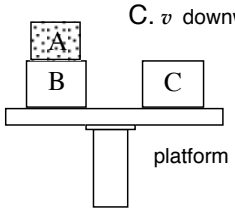
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: It is moving in positive direction

Explain: **positive**

Work done on B by A: Because it is moving in the postive direction...it is productive in other words

Explain: **No such work**

Compare | Work done on B by platform | to | Work done on C by platform |: Work=Force * Distance and since there is no distance...there is no work.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: The platform has to apply a greater force on B so as to move block C as well

Explain: **positive**

\Work done on C by the platform: It still has the normal force, however there is no work being done on it.

Explain: **No such work**

C. The platform now moves downward with decreasing speed.

Acceleration of C: There is no work on Block C by the platform because the force that the platform exerts on block c is not causing it to move.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? The force applied on C is greater than the force that c is exerting on the platform.

Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

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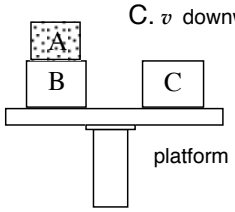


A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **negative**

Work done on C by platform: because A and b is pulling

Explain: **zero**

Work done on B by A: I don't think there's going to be any force.

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: same as above

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: because b is on top of c if you look at free body diagram.

Explain: **positive**

\Work done on C by the platform: I think vconstant is has gravity to it.

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: it's positive

Work done on C by the platform: **The acceleration is upward.**

Explain: **No such work**

Would the answer to previous question change if the positive y-direction were chosen to point down? It's hard to have b and c work together

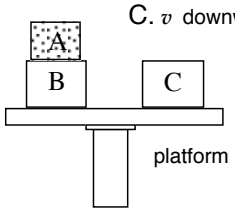
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **zero**

Work done on C by platform: force equals mass times eceleration. there is no acceleration in this priblem.

Explain: **zero**

Work done on B by A: there is no acceleration so why should there be any force.

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: once again there is no acceleration there fore there is no force.

Explain. **No such work**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: if there is no force then how could there be any work? what a stupid question.

Explain: **zero**

\Work done on C by the platform: there is no acceleration and therefore the force is zero.

Explain: **No such work**

C. The platform now moves downward with decreasing speed.

Acceleration of C: no force leads to no work.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? the force is positive and therefore the work that is done is the work to hold the block up into the air.

Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
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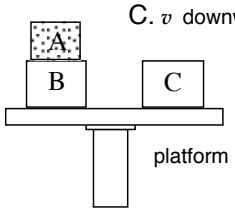
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: THEY ARE MOVING TOGETHER AT A CONSTANT VELOCITY SO FORCE OF PLATFORM ON BLOCK WILL BE TOWARDS THE BLOCK WHICH IS IN THE POSSITIVE DIRECTION

Explain: **zero**

Work done on B by A:

Explain: **No such work**

Compare | Work done on B by platform | to | Work done on C by platform |: THEY DON'T TOUCH

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform:

Explain: **positive**

\Work done on C by the platform: SAME AS BEFORE

Explain: **unanswered**

C. The platform now moves downward with decreasing speed.

Acceleration of C:

Work done on C by the platform: **The acceleration is downward.**

Explain: **unanswered**

Would the answer to previous question change if the positive y-direction were chosen to point down?

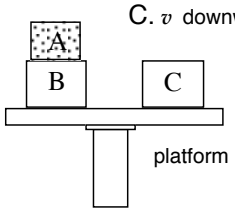
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: There is a positive upwards acceleration

Explain: **positive**

Work done on B by A: Because it is being moved in a positive direction

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: Block B is not doing any work on Block A

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Because the force needed to do work on Block B is greater than the force needed to do work on Block C

Explain: **negative**

\Work done on C by the platform: There is a negative downward acceleration

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Because the force is negative and it is moving in a negative direction

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? Because the force is now in an upward direction

Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
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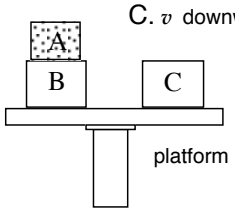

A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: There is a normal force exerted on c by the platform, and since the block is moving upwards the force is positive.

Explain: **zero**

Work done on B by A: work is force times distance. If the force is zero then the work is zero.

Explain: **No such work**

Compare | Work done on B by platform | to | Work done on C by platform |: A did not move B so there is no distance so there is no such work.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: The normal force of block b is greater because with the force that a applies to b, along with the gravitational force, b miust have a greater normal force to make the net vertical force equal zero. The force is greater so the work is greater.

Explain: **positive**

\Work done on C by the platform: Even though the block is moving down, block c is still in contact with the platform so there msut be an upward force exerted by the platform to c.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The block is moving downward so the distance is negative

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? A is positive. D is negative

Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
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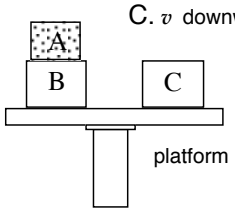
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: It is positive because that force is the normal force. Since the weight of the box is the force which pushes down, then the normal force pushes the opposite direction

Explain: **positive**

Work done on B by A: The platworm is moving a distance up, which is in the positive direction.

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: The two blocks are not moving in relation to each other.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Block B has a larger normal force, thus its work is greater since work = force times distance.

Explain: **positive**

\Work done on C by the platform: It is pushing upward with a normal force since the weight of the block is downward.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Work = Force * distance. The distance is negative, making the work negative.

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? It is still moving downward, thus its work is negative.

Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

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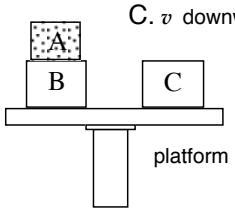

A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: the platform is pushing up on the block, so there must be force.

Explain: **positive**

Work done on B by A: Its pushing!

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: because it is not enough to move a.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: the platform is pushing a through b.

Explain: **positive**

\Work done on C by the platform: if there was not positive force, the block would fly off the platform.

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: *see #14*

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? its pushing against the block

Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

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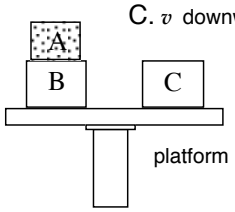

A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **zero**

Work done on C by platform: sum of the forces is ma, no acceleration, therefore, zero.

Explain: **No such work**

Work done on B by A: no power

Explain: **No such work**

Compare | Work done on B by platform | to | Work done on C by platform |: no power

Explain. **No such work**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: no power

Explain: **zero**

\Work done on C by the platform: constant speed, no acceleration.

Explain: **No such work**

C. The platform now moves downward with decreasing speed.

Acceleration of C: no power

Work done on C by the platform: **The acceleration is downward.**

Explain: **No such work**

Would the answer to previous question change if the positive y-direction were chosen to point down? no power

Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

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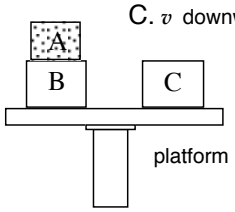

A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: Gravity causes Block C to push down on the platform. So that means the platform must push in the opposite direction.

Explain: **positive**

Work done on B by A: Because Work is equal to Force X Distance so that since the distance is positive and the Force is positive the work must be positive

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: Block B is doing the same work as the Platform is doing on it. So that makes it positive

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: if it is the same mass it is equal

Explain: **zero**

\Work done on C by the platform: It is just zero because the object is falling

Explain: **zero**

C. The platform now moves downward with decreasing speed.

Acceleration of C: There is no force so that means no work

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? Because the force is negative the and distance is negative so that means the work is positive

Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

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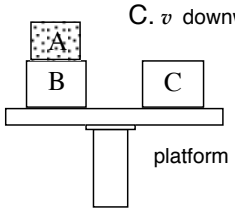

A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The Y direction up is positive, so the Platform 'pushes on Block up by platform'

Explain: **No such work**

Work done on B by A: Not in contact

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: Work = Force x Distance. So the Force that Block A pushes down on B, is over a certain distance . That work is in the negative direction because -F x dis = -Work

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Work is distance, multiplied by all the forces, which it is in conact with the platform and A, more force needed.. more work

Explain: **positive**

\Work done on C by the platform: Still pushing up, but not as much

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The work will be negative, because the force is positive bu tthe distance is down in the negative direction

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? Still travelingin the negative direction with the acc. pointed up in the positive

Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

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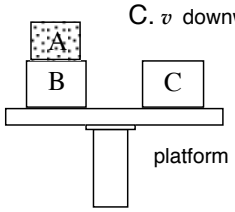

A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: Since C is resting on the platform, the platform is exerting a force onto C so that it does not acclerate.
So since up is positive and the platform is pushing up , then the force exerted on blok C is positive.

Explain: **positive**

Work done on B by A: The work done of Block C is positive because it is moving upward.

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: The work done on block A by block B is positive because it is pushing it upward and up is positive.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Block b's work is greater Than C's because B has A sitting on top of it.

Explain: **positive**

\Work done on C by the platform: The platform is still pushing up on C the same about and direction as before.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Since everything is moving downward, then the work must be negative.

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? The work is negative because it is in the negative direction.

Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

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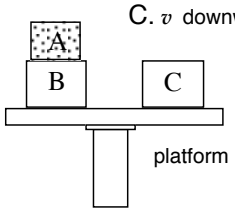

A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **zero**

Work done on C by platform: Since the block is moving at a constant speed, a = 0 so there is no force exerted on block C.

Explain: **zero**

Work done on B by A: Since W = fd and there is no force, then the work done is obviously zero as well.

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: Since Blocks A, B, and C are all part of the same non-accelerating system, block A's force on block b is zero, as is the work done by block A by block B.

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Since neither block C or block B are accelerating, they havbe the same work done on them, zero.

Explain: **zero**

\Work done on C by the platform: The block C is still moving at a constant speed, so the force exerted by the platform onto C is zero.

Explain: **zero**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The work done on block C by the platform has to be zero if the force done on block C is zero.

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? The work done on the block is negative. Since the block is moving against the y direction, the 'distance' is actually a negative distance. The acceleration is positive, so the equation becomes W = -dF so the work done is in the opposite direction of the positive y scale.

Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

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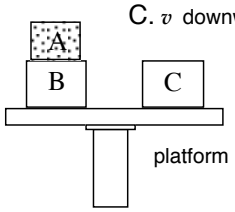


A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **zero**

Work done on C by platform: Because the speed is constant and therefore no acceleration and when the is no acceleration there is no net force

Explain: **positive**

Work done on B by A: Because it is moving the blocks

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: Because it is moving the blocks

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: because they are moving the same

Explain: **zero**

\Work done on C by the platform: Because there is no acceleration

Explain: **zero**

C. The platform now moves downward with decreasing speed.

Acceleration of C: because

Work done on C by the platform: **The acceleration is zero.**

Explain: **zero**

Would the answer to previous question change if the positive y-direction were chosen to point down? Don't know

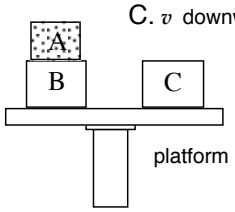
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: the block is moving upward so it has to have a force on it to counter gravity

Explain: **positive**

Work done on B by A: raising up a block takes work, and with positive upward, the work would be pos.

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: there is no displacement of B by A, so there is no work done.

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: masses are the same, displacement is the same, work is the same

Explain: **positive**

\Work done on C by the platform: the block is being held up by the platform, and since the velocity is constant the force on C by platform has to balance the weight of the block and is thus positive.

Explain: **zero**

C. The platform now moves downward with decreasing speed.

Acceleration of C: the work of moving the block is done by gravity.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? work is positive because acceleration is upward.

Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

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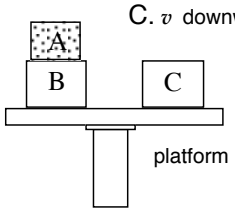

A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: force exerted is a normal force in the up direction, causing the block to move up w/ constant velocity.

Explain: **positive**

Work done on B by A: if force is positive, work will be positive.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: a exerts a force in the downward direction on b, resulting in negative work.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: both travel the same distance. both have the same acceleration. there must be a larger force on b, to cause the same acceleration. a larger force over same distance is a larger quantity of work.

Explain: **positive**

\Work done on C by the platform: platform is still pushing on block in positive direction.

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: force is still in upward direction.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down?

Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

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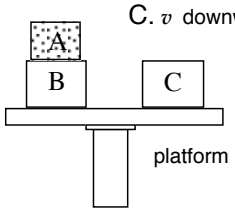

A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: It is an upward force and i chose my coordinate system in the upward direction so the force is upward and therefore by my coordinate system it is positive

Explain: **positive**

Work done on B by A: the work is positive because it is in the upward direction

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: because the block pushes down on block b the work is negative

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: This is becuase a is on top of b and therefore more work needs to be done to push it up than on block v

Explain: **positive**

\Work done on C by the platform: The force is still upward on the block because of Newton's 3rd law it has to push against block c with a force equal and opposite to the force block c exerts on the platform

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: it is positve because it has to push against the blocks in an upward direction and therefore the work is positive

Work done on C by the platform: **The acceleration is downward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? it is pushing up on the blocks with a greater force as it slows the velocity down at a constant rate of deceleration

Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

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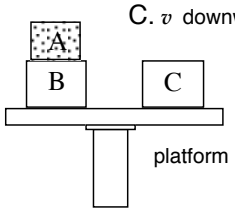


A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The force is opposite of the Weight (gravitational) force.

Explain: **No such work**

Work done on B by A: No work because object is not moving.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: Force of A is pushing dwonward on block B.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: This is because they have an equal acceleration but block b has more forces exherted on it.

Explain: **positive**

\Work done on C by the platform: The force is still puching upward relative to the platform.

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The object is now moving downward, thus the work is negative.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? The object is moving downward, thus the work is negative.

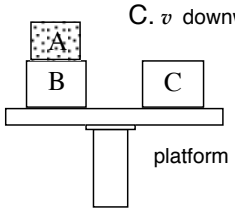
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: Gravity is negative, and the net force is 0, so normal force from the platform must be positive.

Explain: **positive**

Work done on B by A: The platform must push it up, so there is work done.

Explain: ***negative***

Compare | Work done on B by platform | to | Work done on C by platform |: It is trying to push down on block b.

Explain. ***greater***

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: The work on block b must support both blocks a and b, which have more combined mass than c, and so it is more than the work on c.

Explain: **positive**

\Work done on C by the platform: There is still no net force, and gravity is still negative, so the normal force must be positive.

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The platform pushes the block up (positive direction) to oppose gravity.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? The acceleration is upward, which means the platform's work must be more than the gravity to cause it to accelerate up rather than down.

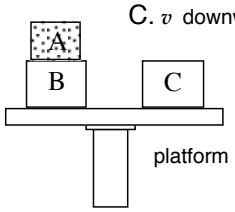
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **zero**

Work done on C by platform: There is no accelleration thus there should not be any force because F=MA

Explain: **positive**

Work done on B by A: There should be work because the direction is in a positive direction.

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: Same. A is connected to B which is connected to the platform

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Work on all of the blocks are the same.

Explain: **zero**

\Work done on C by the platform: The should be no force because the accerelation is zero.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The platform is moving in a negative direction.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? The force is in an upward or positive dirction.

Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
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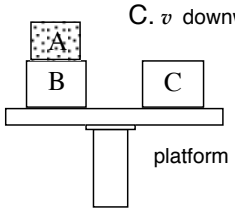

A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: if you make gravity negative, then the force upward is positive

Explain: **positive**

Work done on B by A: C will travel a poistive direction, and so distance times force = positive times positive = positive = work

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: the force from B to A is positive because up is the positive direction.

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: it balances out on the platform

Explain: **No such force**

\Work done on C by the platform: there is a constant velocity, meaning acceleration = 0, so force for C is also 0.

Explain: **No such work**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Since force = 0, then work also equals zero.

Work done on C by the platform: **The acceleration is downward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? acceleration is downward because velocity is decreasing. therefore, force is negative and so work is positive, because the distance it travels is negative... so negative times negative = positive.

Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
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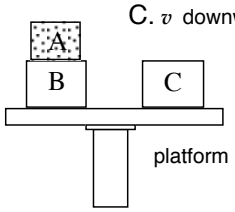

A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: If up is positive, the platform is pushing back on the gravity of C, therefore giving it the upward arrow, or positive.

Explain: **zero**

Work done on B by A: The platform is working, not block C.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: It's pushing down on C, giving it a negative force, and negative work.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Block B has to work with A on top of it, C only works for itself.

Explain: **positive**

\Work done on C by the platform: It's still holding it up, in the upward, positive position.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: It's going down.

Work done on C by the platform: **The acceleration is downward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? It's going downward.

Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
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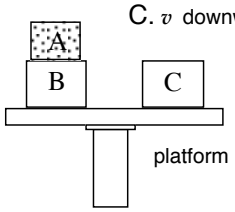

A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: the block rest on the platform, so there must be a force exerting on the block to hold it up, which is by the platform.since y+ is upward, the force is upward.

Explain: **positive**

Work done on B by A: since the block is moved upward by the platform, there a displacement in the positive y direction for block c, therefore work done on block by platform is positive.

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: block a rest on block b, and block a does not cause block to to have any displacement, work done on block b is by the platform, not by block a.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: since block a rest on block b, the force they exerts on the platform is greater than that of block c, therefore the absolute value of work done must be greater taht that of block c

Explain: **positive**

\Work done on C by the platform: the platform is still ecerting an upward force to hold up the block, therfore the force it exerts on the block is still positive.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: work done is negative since the block's displacement is now in the negative y direction.

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? the displacement of block is in the negative y direction.

Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
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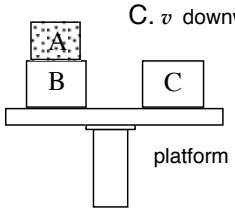
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **zero**

Work done on C by platform: No acceration

Explain: **positive**

Work done on B by A: An incress in potional energy

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: The platform is what is moving

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: They are both move by the platform

Explain: **negative**

\Work done on C by the platform: I have no idea

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: the platform is going down the the potainal is decressing.

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? A loss of potentiol energy

Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

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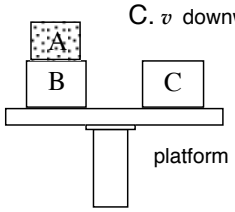

A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: because the block is moving in the positive y direction, the force exerted on block C by the platform is positive.

Explain: **positive**

Work done on B by A: W=F*dsince the distance is positive and the force is also positive, therefore, the work done on block C is positive, too.

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: The work done on block B by A is positive since the although the force is exerting downward, the sign will cancel out with the change in distance; so the work done is positive.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: the work done on block on B is greater than the work done on C since the forces exert on B is greater than the force exert on C, the work done on B will be greater.

Explain: **negative**

\Work done on C by the platform: Because the direction is moving downward and opposit from the positive y direction, the force is negative.

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Although the force is negative, the change in distance is also negative, therefore, the work done on C is positive.

Work done on C by the platform: **The acceleration is downward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? Sice the velocity is decreasing and moving downward, the work done is decreasing. therefore, the work done is negative.

Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

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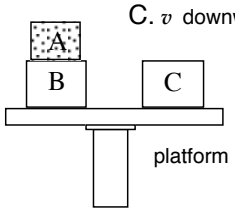

A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: the direction of the block c is moving in the postive y direction indicated in the diagram.

Explain: **negative**

Work done on B by A: the block c is pushing against the platform in the negative y direction

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: block B is pushing up on block a.

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: the magnitudes are equal because neither blocks are moving on the platform

Explain: **negative**

\Work done on C by the platform: block c is still pushing on the platform

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: the platform is moving in the negative direction

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? the system is decelerating so the work is negative.

Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

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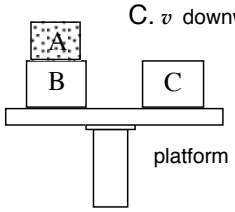

A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: it is making the block go up, which is in the positive direction

Explain: **positive**

Work done on B by A: the net force is positive and the distance it is travelling (parallel to the direction it is travelling) is positive, therefore, the product is positive

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: the force on B by a is in the negative direction, while the distance travelled is positive, so the prodict is negative

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: the net force is still in the upward direction (the force on the block by the platform is greater than any forces acting in an opposite direction), and the upward speed is constant for both blocks, and the distance travelled is the same for both blocks, but the net force on block B is greater than the net force on block C, so it does more work on block B

Explain: **positive**

\Work done on C by the platform: the platform is still pushing up on the box in

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: the distance travelled is in the negative direction, and the net force is in the negative direction, so the product is positive

Work done on C by the platform: **unanswered**

Explain: **unanswered**

Would the answer to previous question change if the positive y-direction were chosen to point down?

Explain: **unanswered**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

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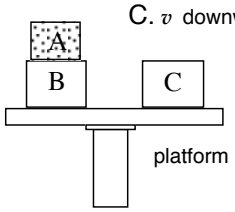

A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The force exerted on block C is a normal force and it's positive because it's going in the positive y-direction.

Explain: **positive**

Work done on B by A: W=fd and both f and d are positive, therefore work done is also positive.

Explain: **unanswered**

Compare | Work done on B by platform | to | Work done on C by platform |:

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Because block A is on top of block B, the total mass is greater. Therefore, more work is done on block B by the platform.

Explain: **positive**

\Work done on C by the platform:

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C:

Work done on C by the platform: **The acceleration is downward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? If acceleration is negative, then work must be negative also.

Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
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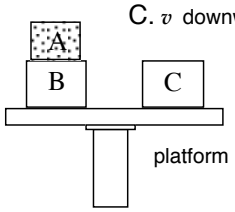


A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: It is positive because the direction of the force is upward, which is the positive direction.

Explain: **positive**

Work done on B by A: It is positive because the direction of the force by the platform is upward, which is the positive direction.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: It is negative because the force of the weight of block A on block B is downward, which is in the negative direction.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: The work done on block B is greater than the work done on block C. Since block A is ontop of block B, it adds to the weight of block B, which means more force.

Explain: **positive**

\Work done on C by the platform: The force on block C by the platform is positive because the direction of the force is upward in the positive.

Explain: **No such work**

C. The platform now moves downward with decreasing speed.

Acceleration of C: There is no work, since the situations acceleration is constant the net force is zero. This requires no force.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? It is positive because there is work done to slow block C down, which is in the positive direction.

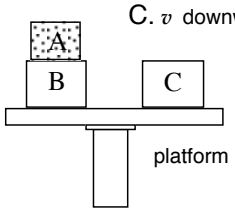
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: it is an upward force.

Explain: **negative**

Work done on B by A: it is a downward force.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: it is in the downward direction.

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: its an absolute value, so they're equal.

Explain: **positive**

\Work done on C by the platform: its in the positive direction

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: its in the negative direction.

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? its in the negative direction,

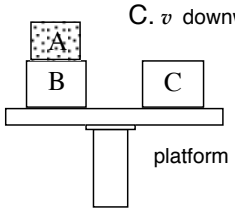
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: its being applied in the same direction as +y

Explain: **positive**

Work done on B by A: because the force is postive

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: block a is being pushed int he same direction

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: more forces are acting on b?

Explain: **negative**

\Work done on C by the platform: a downward negative force is acting on the block plus the distance is in the negative direction

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: distance is in the negative direction and the force is negative

Work done on C by the platform: **The acceleration is downward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? the direction is negative but the acceleration is also negative

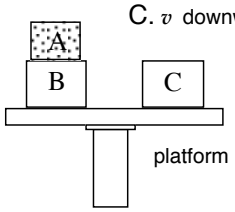
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The platform is moving up, therefore while gravity tries to push both the platform and the block down, the platform does positive work to bring it up. Thus, an equal and opposite positive force is down on the block by the platform.

Explain: **positive**

Work done on B by A: Platform is moving in a positive direction.

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: It is using positive work to keep it in place.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: There is more energy holding down block B, thus the equal and opposite force must be greater for block B.

Explain: **negative**

\Work done on C by the platform: Now gravity is taking its natural toll, and block c is moving downwards, in a negative direction, with negative force.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The block is moving the opposite direction of the block and the force holding it there is gravity.

Work done on C by the platform: **The acceleration is downward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? The platform is slowing down, therefore the work done on block c is positive.

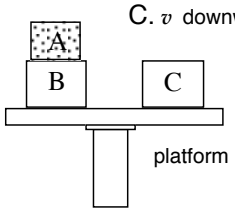
Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: There is a normal force exerted on block C by the platform and it is negative.

Explain: **positive**

Work done on B by A: Work is force x displacement. The block is moving up to the platform is doing positive work.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: The normal force on block B by block A is in the negative directions. Thus, the work is negative.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: The normal force on block B is greater than C to keep it at rest, due to the extra mass of block A.

Explain: **positive**

\Work done on C by the platform: The direction of the normal force is still positive, but this time the displacement is negative.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The displacement in negative.

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? The displacement is still in the negative direction although the acceleration is positive.

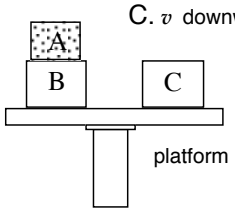
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: Block C is exerting a negative gravitational force on the platform by C, and it's not going through the platform, so there must be an equal and opposite force on C by the platform.

Explain: **positive**

Work done on B by A: The platform is moving parallel in the positive direction, moving C upwards.

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: Block A is moving down in the direction of B, parallel to movement. Work cannot be negative.

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Block B and Block C weigh equal amounts, so the same amount of work is done on them. Seperately, Block B does work on A.

Explain: **positive**

\Work done on C by the platform: Work is the parallel force times the distance traveled. The platform is moving downward, but it's still exerting an upward force on C, because it's not in freefall and not moving down faster than gravity.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Force is positive, but the distance moved is negative, so the work done is negative.

Work done on C by the platform: **The acceleration is downward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down?

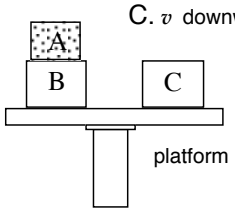
Explain: **unanswered**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The net force on block C is zero.

Explain: **positive**

Work done on B by A: Block C moves in the positive direction up.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: The force on Block B by block A is negative.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: The normal force exerted on block B by the platform is greater, therefore the work is greater.

Explain: **positive**

\Work done on C by the platform: The net vertical force on block C equals zero.

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The force exerted on block C by the platform is positive.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? The force is in the upward direction.

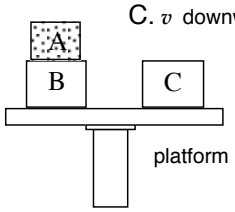
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **zero**

Work done on C by platform: since its constant speed it means there is no acceleration. so net force is zero.

Explain: **zero**

Work done on B by A: since net force is zero the work done is also zero. w=fd

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: again it is not accelrating in either direction. so net force is zero and work is zero.

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: the work done on both is zero.

Explain: **zero**

\Work done on C by the platform: constant speed means, zero acceleration means, zero net force.

Explain: **zero**

C. The platform now moves downward with decreasing speed.

Acceleration of C: zero net force means zero work done

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? since it is decreasing in speed movind downward that means the accel opposite direction of the speed, which is wpward. that is positve acceleration meaning postive force which produces positive work done on block c.

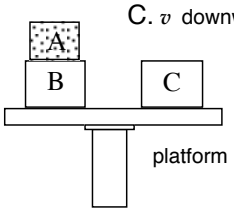
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The force is from the platform on block C is positive since the system moves in the positive direction. The net force is zero since the system moves with constant acceleration.

Explain: **No such work**

Work done on B by A: No work is happening since there is no acceleration.

Explain: **No such work**

Compare | Work done on B by platform | to | Work done on C by platform |: No work is happening since there is no acceleration.

Explain. **No such work**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: There is no net force to derive a work value from.

Explain: **positive**

\Work done on C by the platform: The force is still opposite to the force of gravity which makes it positive. The net force is still zero.

Explain: **No such work**

C. The platform now moves downward with decreasing speed.

Acceleration of C: No work is happening since there is no acceleration.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? The acceleration is upward since it is decreasing in the negative direction. The work is also positive since it is 'pushing' up as well.

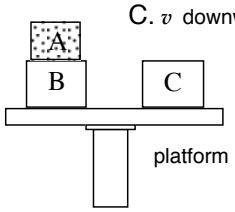
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: b/c it is moving upward in the positive direction on the y axes

Explain: **zero**

Work done on B by A: the block is not moving

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: going upward work

Explain. **less**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: b/c b has help form a

Explain: **negative**

\Work done on C by the platform: moving downward

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: must go down with the platform

Work done on C by the platform: **The acceleration is zero.**

Explain: **zero**

Would the answer to previous question change if the positive y-direction were chosen to point down? the block is moving relative to the platform

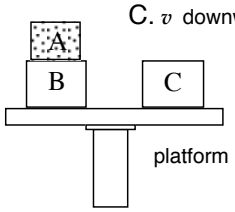
Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **zero**

Work done on C by platform: because there is no acceleration

Explain: **positive**

Work done on B by A: because it is moving at constant speed so there is motion so work is being done

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: because block a is not moving reletive to block b

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: because block b has the force of block A acting on it, so it has more force acting down against the platform than block c

Explain: **zero**

\Work done on C by the platform: there is no acceleration on block c by platform

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: because it is moving down

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? because the platform is still moving down

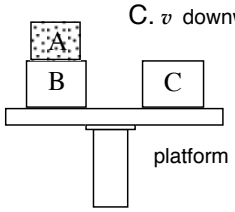
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The block exerts a negative force on the platform. To compensate, the platform exerts a positive for on block c.

Explain: **positive**

Work done on B by A: Work is the distance times the force. Since the force is positive and the distance is positive, the work is positive.

Explain: **unanswered**

Compare | Work done on B by platform | to | Work done on C by platform |:

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: The force of block B is greater the the force of block C. Since the distance is constant for the two blocks, the work of block B is greater.

Explain: **positive**

\Work done on C by the platform: The distance is positive because it is still conpensating for the negative force of block c.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Since the force on block c by the platform is positive, but the distance is negative, the work is negative.

Work done on C by the platform: **The acceleration is downward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? Although the velocity is decreasing, the velocity is still in the negative direction, so the work is negative.

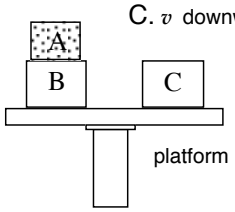
Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: the platform is moving up.

Explain: **positive**

Work done on B by A:

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |:

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform:

Explain: **positive**

\Work done on C by the platform:

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C:

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down?

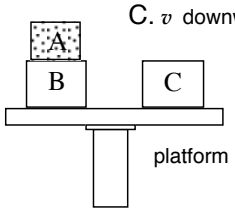
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: It is pushing it in the upward direction.

Explain: **positive**

Work done on B by A: The force is positive and the distance is positive.

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: Block A is not causing block B to move.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Block A is on Block B so it would take more force to raise Block B.

Explain: **positive**

\Work done on C by the platform: C is pushing a constant force downwards which is a negative force. The platform exerts an equal and opposite force on the block so it is positive.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The force is positive and the distance is negative so the work is negative.

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? The force is positive and the distance is negative.

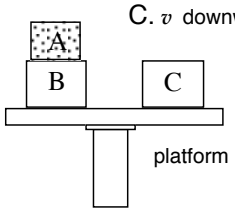
Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: the normal force exerted on C by the platform is in the positive y direction as established in the problem.

Explain: **positive**

Work done on B by A: work = force * distance or Fdcos (angle)--the force exerted on C is positive and the distance is positive and the angle is 90 degrees because the platform is moving straight up.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: the force is in the negative direction and the distance is in the positive direction so work would be negative.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Block b and c have the same mass, but B also has the mass on A on top, so the totall mass of A and B (hence the normal force exerted on B by the platform) would be greater.

Explain: **negative**

\Work done on C by the platform: now, the normal force is in the negative direction.

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: the force and distance are both negative, which would make the work positive.

Work done on C by the platform: **The acceleration is downward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? the force is still negative that is acting on block C and the distance is still negative, so work would be positive. (guess)

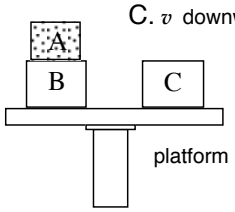
Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: For the block to be moving upward, the force on the block has to be positive.

Explain: **positive**

Work done on B by A: The block is moving in the positive direction.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: The force of block A on block B is in the negative y direction.

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: The work done is equal because they're both the same mass and going at the same speed.

Explain: **negative**

\Work done on C by the platform: The platform is traveling in the opposite direction of the y direction.

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The force on the block by the platform is in the positive direction.

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? For the block to be moving in the negative direction the work must be negative.

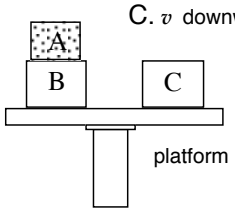
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The platform moves up the y axis...

Explain: **positive**

Work done on B by A: again, its pushing up the y axis...

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: block a is pushing down the y axis onto block b...

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: block B is pushing harder onto the platform, because it has block A on it...

Explain: **positive**

\Work done on C by the platform: same as before... a constant speed changes nothing...

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: same thing, again...

Work done on C by the platform: **The acceleration is downward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? Im not sure on this one....

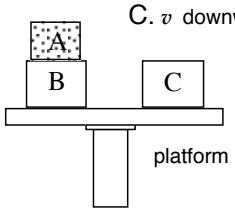
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: normal force 'countering' the weight of C

Explain: **zero**

Work done on B by A: net force equals zero

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: the displacement between A and B is zero

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: since B, together with A, will have more mass and therefore the work will be greater?

Explain: **positive**

\Work done on C by the platform: Again, the normal force

Explain: **zero**

C. The platform now moves downward with decreasing speed.

Acceleration of C: net force is zero since its velocity is constant

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? since acceleration is postive, force is postive

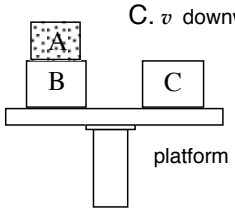
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The platform is pushing the block up to counter gravity pushing it down. Up is the positve direction.

Explain: **positive**

Work done on B by A: The forsce and the direction are both positive.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: The force by block A on block B is negative, and the distance is positive, so the work is negative.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: The platform is pushing on block B with a greater magnitude than block C because block B also has the force excerted on it by block A, therefore it takes more to keep block B stationary.

Explain: **positive**

\Work done on C by the platform: The platform is still pushing up on the block to oppose gravity.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The force is positive but the distance is negative, so the work is negative.

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? The force is positive, but the distance is negative, so the work is negative.

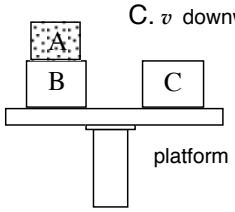
Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: We defined the positive y direction as being up. The platform is below the block, so the force acting on the block by the platform must be up, which will make it positive.

Explain: **positive**

Work done on B by A: Work will be force times distance, which in both cases is positive for block C. This will yield positive work.

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: The force by block A on block B didnt make it move at all. This means the distance is zero, which makes work zero.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: The platform will have to exert more of a force over the same distance in order to move block B, since block A is sitting on top of it. This will make the work more.

Explain: **positive**

\Work done on C by the platform: The platform is still below block C, which makes the force acting on block C in the upwards direction, which we have defined to still be positive.

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The force is positive, as said above, and the distance is positive as well, even though the platform is moving down. Its a distance, not x2-x1.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down?

Acceleration is upward, since the platform is moving downward and slowing down. This means that the force is upward, so work will be too.

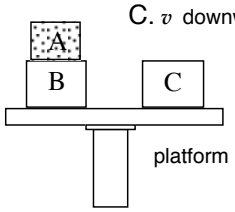
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The force is in the upward y-direction, which is positive.

Explain: **negative**

Work done on B by A: Work is being done against the position of the block. (not a very good explaination, I know)

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: The work is being done in the opposite direction of #8.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Because the work done on B also includes work done on A (or A would remain stationary while B moved, which can only happen to ghosts).

Explain: **positive**

\Work done on C by the platform: There is only a normal force on C by the platform, in the upward (+) direction - the downward force is gravity.

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The work is not opposing the motion of C (i.e. it is working with gravity).

Work done on C by the platform: **The acceleration is downward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? Since there is only a normal force holding C up.

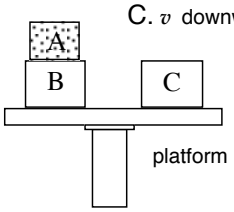
Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The force exerted on C by the platform would be positive. It would be a normal force, which would be countering the force of gravity.

Explain: **positive**

Work done on B by A: the work done on C would be positive: it is done by a positive force, and is causing it to move in the positive direction.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: The distance it is moving is in the opposite direction of the force applied by block A.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: I think it would be greater then becuase B would have the added weight force from A.

Explain: **unanswered**

\Work done on C by the platform:

Explain: **unanswered**

C. The platform now moves downward with decreasing speed.

Acceleration of C:

Work done on C by the platform: **The acceleration is downward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? The speed is increasing therefore the acceleration must be downward.I think it would be neagative because the direction would be neagative.

Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

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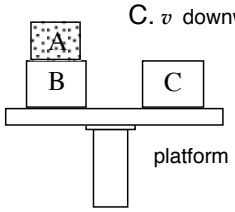
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The block is moving up with the elevator, so a positive force must be being aplied to block C

Explain: **positive**

Work done on B by A: It is moving up, with a force, over a period of time.

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: Same as above, even though it has force done on it down, it is not as great.

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: the move up at the same time.

Explain: **negative**

\Work done on C by the platform: It go down!

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: the force is negative, therfore the work must be negative too!

Work done on C by the platform: **The acceleration is downward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? it go down!

Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
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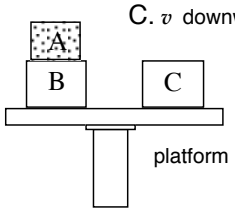
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: the force is postive because you have the force of the weight (m*g) pointing downward, and the force on block c by the platform is the opposing force that points in the opposite direction

Explain: **zero**

Work done on B by A: Work=force*distance. if you are taking the orgin to be block c on the platform, the displacement is zero, and thus work is zero

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: block b is at the orgin, if A is on top than the force of a on b is pointing downwward, which gives it a negative F so the work will be negative.

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: b and c have equal masses. for the system, you are only concerned about block b and the platform. mass a is neglected, and since they have equal masses (b&c) than the force will be the same

Explain: **positive**

\Work done on C by the platform: even though the platform is moving down, the platform still exerts an upward force on c, that opposes the force of gravity

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: the platform is moving down, so now there is displacement to consider.

Work done on C by the platform: **The acceleration is downward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? even though the block is decreasing in speed, it's still moving downwards

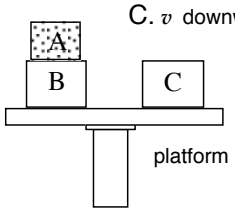
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: Force of gravity pushes down on block C, normal force of platform pushes up on C. Gravity is usually consider negative, therefore, the normal must be positive. Secondly, constant velocity = a=0. Also the y axis is our reference frame it is positive in the upward direction (same direction as the normal).

Explain: **zero**

Work done on B by A: W=Fdcostheta, over all forces on block C = 0 therefore the work performed on C is zero.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: If we look JUST at the work that A is exerting on B, A is pushing downward on B (a normal force in the opposite direction). This would conclude that the work A is attempting do on B is negative. Over all though no work is accomplished, as B does not move (relative to platform), and the net force operating on B is zero. (B isn't accelerating).

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Both blocks move the same distance. W=Fd, If the distance is the same, and the over all net force acting on B and C are the same (in this instance zero), then the absolute value of the work on both B and C are the same.

Explain: **positive**

\Work done on C by the platform: The platform is pushing up on C, as a normal force. This force is in the same direction as our reference frame of y being positive in the upward direction.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The platform moved block C, over some distance. W=Fd, and since there was a movement of the block, exerted by a force from the platform, work was done on the block but in the negative direction. Negative direction is due to the reference frame.

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? The platform moved block C, over some distance. W=Fd, and since there was a movement of the block, exerted by a force from the platform, work was done on the block but in the negative direction. Negative direction is due to the reference frame.

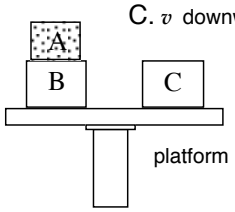
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: Nc-plat is negative and downward, so Nplat-c must be positive because it's upwards.

Explain: **positive**

Work done on B by A: Since the force is positive, the work must be positive as well.

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: Block B is pushing block A upward, so it must be doing positive work on it.

Explain. **less**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: The work block B does is less because it isn't lifting as much mass as the platform is.

Explain: **positive**

\Work done on C by the platform: The force is still positive because C isn't accelerating so the block is still in force balance.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The block is going downward, so it must be doing negative work.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? The acceleration is upward, but the velocity is still downward so the platform is doing negative work.

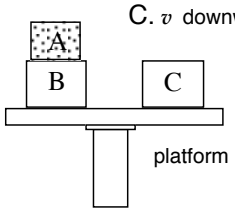
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The force exerted on block C by the platform is the block's Normal force in the upward direction. Assuming that up is positive . . . .

Explain: **positive**

Work done on B by A: W = F * D If the foce is positive, and the distance is also positive *because both are going in an upward direction* then the Work should also be positive.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: W = F * D In this case the force exerted on block B by block A is pointed down and is therefor negative. The distance is still going up and therefor still negative. Negative * Positive = Negative.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: The work done on block B is raising the combined mass of blocks A and B, which requires more force. The distance should be the same. So the work should be greater on block B.

Explain: **positive**

\Work done on C by the platform: As long as the platform is moving less than the terminal velocity of the block, then gravity should be holding it to the platform. So the platform exert's an upward force on the block that is the block's nomal force.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Positive force * Negative distance = Negative Work

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? Same as in part B.

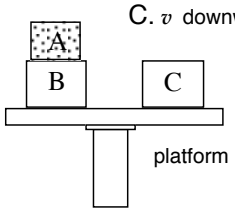
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The force exerted on block C by the platorm is in the positive Y direction, and so is a positive force.

Explain: **positive**

Work done on B by A: Work is equal to force times distance. A positive force acts on block C over some distance, so the work is positive.

Explain: **negative**

Compare l Work done on B by platform l to l Work done on C by platform l: The force exerted on Block B by Block A is negative because it points in the negative Y direction.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: The platform exerts a larger force on Block B than on Block C, necessary to keep Blocks B and A moving at constant velocity. Therefore, the work is done on Block B is greater.

Explain: **positive**

\Work done on C by the platform: The force exerted on block C by the platform is the normal force, which points in the positive y direction.

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The work done on block C by the platfrom is still positive, as the force points in the positive direction. The fact that the platform moves in the opposite direction does not affect the amount of work done over the same distance.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? The platform is slowing down, which means that the normal force exerted by the platform on block C is gradually increasing, in the positive direction.

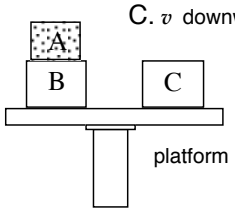
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **zero**

Work done on C by platform: The force is zero because C is not accelerating. F=ma, if a=o, F=0

Explain: **zero**

Work done on B by A: W=Fd, if the force (F) is zero, then the work is zero.

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: Same as answer 8: A is not accelerating, therefore F=0, and therefore W=0

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: The work done on B is zero for the same reasons that the work done on A and C are zero. Therefore, the work done on both of them is equal.

Explain: **zero**

\Work done on C by the platform: The force is zero. the Acceleration is zero.

Explain: **zero**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The Force is zero, so the work is zero.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? The acceleration for C is positive, because it is upwards. Therefore, F=ma is positive, and therefore, W=Fd is positive.

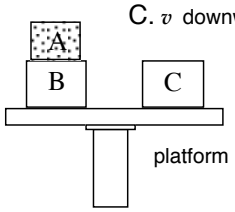
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: the force exerted on block c by the platform is the normal force. that is in the direction of positive y, therefore, it is positive.

Explain: **positive**

Work done on B by A: The work done on block c by the platform is positive because it is pushing the plock up in the negative direction.

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: The work done is zero because block b is not moving, all the work is done by the platform.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: block b has the combined weight of block a, so it requires more work to move it.

Explain: **positive**

\Work done on C by the platform: the force on c is still the normal force, it is slightly less in magnitude than before, but still positeve.

Explain: **No such work**

C. The platform now moves downward with decreasing speed.

Acceleration of C: There is no work involved in this because the platform is lowering and block c is merely sitting there.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? the work done on block c is positive because the platform is pushing on it to make it slow down.

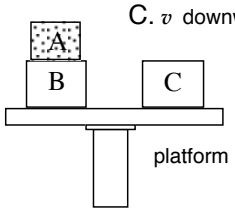
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: Because the block pushes down on the platform, and the platform pushes back up (in the positive direction) on the block.

Explain: **positive**

Work done on B by A: Because the platform pushes it up, with a y distance that is positive. So when you multiply the foce (which is positive) times the distance (also positive) then you will get a positive number.

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: Same reasoning.

Explain. **unanswered**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform:

Explain: **positive**

\Work done on C by the platform: Still pushing up in the positive direction on the block.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Block is giong down, negative distance (-) times positive force (+) make a negative number.

Work done on C by the platform: **The acceleration is upward.**

Explain: **unanswered**

Would the answer to previous question change if the positive y-direction were chosen to point down? I have no idea.

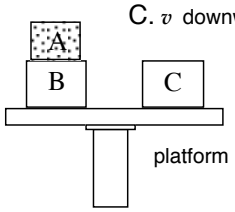
Explain: **unanswered**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The positive direction is the y directio which is up, and the platform pushes in that direction on the block.

Explain: **positive**

Work done on B by A: same reasoning

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |:

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Block B has the additional mass of A resting on it.

Explain: **positive**

\Work done on C by the platform: Force is still exerted in a positive direction.

Explain: **unanswered**

C. The platform now moves downward with decreasing speed.

Acceleration of C: I am not sure

Work done on C by the platform: **The acceleration is upward.**

Explain: **unanswered**

Would the answer to previous question change if the positive y-direction were chosen to point down?

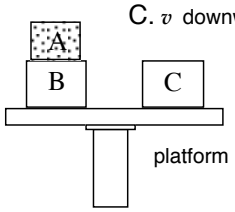
Explain: **unanswered**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: the force exerted on block C is positive because the force vector is pointing in the positive y direction.

Explain: **positive**

Work done on B by A: W=fd In this case botht eh force and displacement are positive so the work will be positive.

Explain: **No such work**

Compare | Work done on B by platform | to | Work done on C by platform |: Block A is not causing the displacement of block b. The platform is.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: It will be greater because the platform exerts a greater force on block B.

Explain: **positive**

\Work done on C by the platform: The platform is still pushing up on the block so the force exerted on it is in the positive direction.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: force is positive but displacement is negtative so work will be negative.

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? Force is positive displacement is negative so work will be negative.

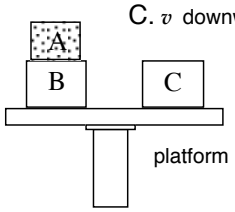
Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The force is the normal force which is positive in this case.

Explain: **zero**

Work done on B by A: Since the velocity is constant, acceleration is zero, and there is a zero net force. So the work is zero in this case.

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: It is still zero because there is zero acceleration.

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Equal because they are both zero.

Explain: **zero**

\Work done on C by the platform: Zero because eventhough it is in downward motion, the speed is still constant so the acceleration is zero and the force is zero.

Explain: **zero**

C. The platform now moves downward with decreasing speed.

Acceleration of C: the change in force is zero so work equals zero.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down?

Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
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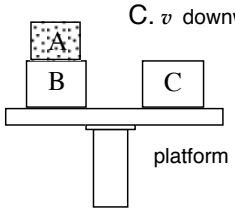


A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: because the block is moving up

Explain: **positive**

Work done on B by A: positive by convention

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: by convention since up is positive

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: because block b is worked on by black a as well

Explain: **negative**

\Work done on C by the platform: since in downward position

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: since down

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? upward since slowing down

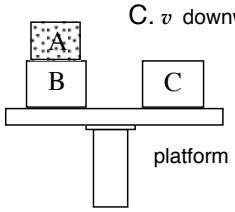
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The platform is pushing the block upwards.

Explain: **positive**

Work done on B by A: The work done by the platform is pushing the block upwards.

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: Block A does nothing to displace block b and therefore no work is done.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Block B has more mass due to the addition of block a and thus has a greater force pointing downwards.

Explain: **positive**

\Work done on C by the platform: The normal force by the platform is positive otherwise the block would fall right through the platform.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The block is undergoing negative displacement.

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? The displacement of the block is still negative.

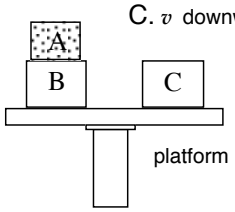
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The platform is exerting a normal force on the block upwards.

Explain: **negative**

Work done on B by A: The block is pushing down on the platform with its weight.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: The block A is pushing down on B with its weight

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Block B is pushing down with more weight and normal force on the platform than C is.

Explain: **positive**

\Work done on C by the platform: The platform is still pushing up on the block.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Block C is pushing the platform down.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? The block C is pushing upward on the block.

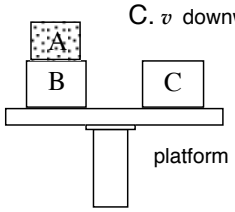
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The force of the platform on block C must be positive because the platform is pushing up on the platform as the block is pusing down.

Explain: **positive**

Work done on B by A: The work done on block C must be positive because the platform is raising the block up.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: Block A is pusing down on block B, which means it is causing negative work since that means block B has to exert more work to push block A up.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: It is greater than the work done on block C because block B has to work to push block A up also. So the platform has exert more force on B so that block B can raise block A.

Explain: **positive**

\Work done on C by the platform: The platform must still hold block C up so the force is still positive. The force however decreased in magnitude because the platform has to work less.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The work done on block C is negative because the platform is not working to push up block C anymore. Instead, Block C is working in the platform's favor to move downward.

Work done on C by the platform: **The acceleration is downward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? The work is still negative because Block C is now helping the platform move down.

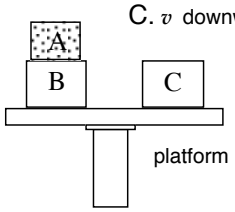
Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The platform is pushing on the block with a normal force that is pushing in the upward direction.

Explain: **positive**

Work done on B by A: Since the force is positive, and the direction of displacement is positive, the work must also be positve

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: Block A is applying a negative force over a positive distance, therefore the work being done must be negative.

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Since block B is not accelerating, the forces acting on it must be opposite and equal, and since the displacement of distance is the same, then the work done must be the same.

Explain: **positive**

\Work done on C by the platform: The normal force is still acting in the upward direction, so it must therefore be positive.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Since the force is positive, but the displacement is negative, the work must be negative.

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? Since the force remains positive, and the displacement is negative, then the work must also be negative.

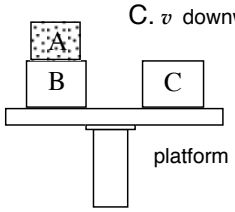
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: It is in the upward direction

Explain: **positive**

Work done on B by A: Because the force is positive

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: The force in a negative direction, therefore the work is negetive.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: The Work in block B is Block B plus Block A

Explain: **positive**

\Work done on C by the platform: it's still positive just with lesser magnitude

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: It's still positive, but with less magnitude

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? THe work is still positive as long as the platform is moving slower than the block is falling.

Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
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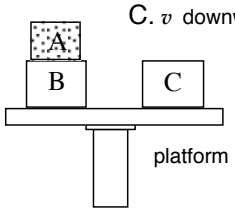
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **zero**

Work done on C by platform: The speed is constant, thus no acceleration, thus no force. Zero force on block C.

Explain: **zero**

Work done on B by A: The speed is constant. If there is no force, there can be no work.

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: constant speed, no acceleration, no force.

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: There should not be any work because there is no acceleration, thus no force.

Explain: **zero**

\Work done on C by the platform: Constant speed means no acceleration, no force.

Explain: **zero**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Zero, no acceleration due to constant speed, no work.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? The platform speed decreases as it moves down. There is an upward acceleration vector countering the velocity downward. This makes it positive.

Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
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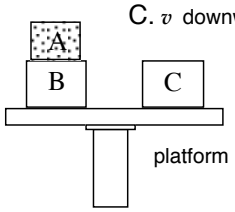

A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: It is positive if we say let gravity be negative.

Explain: **zero**

Work done on B by A: work= force * distance, it's at a constant velocity so that means the force acting upon C is zero.

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: Same as question 8.

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Both are zero. Work is force*distance. The block is traveling but the block has a net force of 0.

Explain: **positive**

\Work done on C by the platform: positive if we let gravity be negative.

Explain: **zero**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The block is moving at a constant speed so therefore the net force on the block is zero.

Work done on C by the platform: **The acceleration is downward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down?

Work=force*distance. The net force of the object is negative so therefore the work will be negative too.

Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
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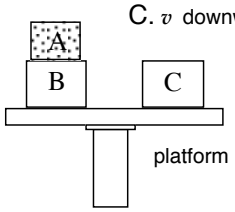
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **zero**

Work done on C by platform: Force exerted on block C by the platform is zero because block C is not acceleratig.

Explain: **positive**

Work done on B by A: Block C is carried upward, which is positive direction (delta h is positive), by platform.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: It is negative because the direction of force on block B by block A is opposite from the direction the platform moved.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: It is because (Ma+Mb)g*h > Mc*g*h.

Explain: **zero**

\Work done on C by the platform: Block C is not accelerating.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Block C is carried downward, which is negative direction (delta h is negative), by the platform.

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? Because delta h is negative for block C.

Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
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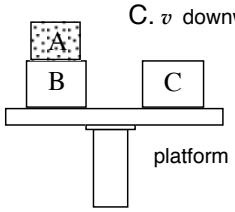
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **zero**

Work done on C by platform: The velocity of block C is constant, no acceleration.

Explain: **negative**

Work done on B by A: There is a force and it moves at a distance.

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: There are forces on block B, that makes it have work.

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: They both move the same distance and exert the same force on one another.

Explain: **zero**

\Work done on C by the platform: The

Explain: **unanswered**

C. The platform now moves downward with decreasing speed.

Acceleration of C:

Work done on C by the platform: **unanswered**

Explain: **unanswered**

Would the answer to previous question change if the positive y-direction were chosen to point down?

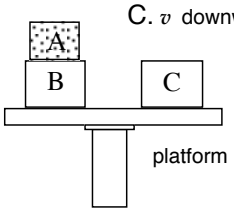
Explain: **unanswered**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: There is a normal force exerted on C by the platform opposing gravity in the positive y direction.

Explain: **positive**

Work done on B by A: the platform is moving block C into a position higher on the positive y axis

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: Block B is pushing block A in the positive y direction

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: they are both being moved the same distance and they are of the same mass.

Explain: **positive**

\Work done on C by the platform: the platform is exerting a force in the positive y direction opposing the force of gravity on the block

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: the block is being moved to a lower position on the y axis.

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? the platform is moving block C in a downward or negative direction

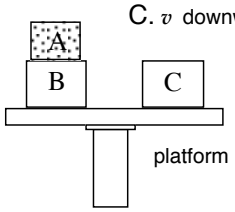
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: it is going up

Explain: **positive**

Work done on B by A: same

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: going down

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: they are both going up at the same speed

Explain: **negative**

\Work done on C by the platform: going down

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: same

Work done on C by the platform: **The acceleration is downward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? it is the normal vector going the oposite dirrection

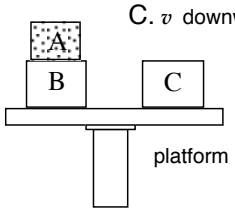
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: Zero acceleration, so according to Newton's Second law, the force exerted on C by the platform is equal and opposite to the weight of C.

Explain: **positive**

Work done on B by A: Work is done in the direction of displacement, which is positive.

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: A exerts a normal force on B equal to its weight, which is down. The direction of motion is up.

Explain. ***greater***

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: The absolute value of work done on B is greater than the work on C because the system of A and B has more mass than C, having a larger normal force on B by the platform and so more work.

Explain: **positive**

\Work done on C by the platform: Zero acceleration but the platform pushes on C as much as the force of gravity pulls on C according to Newton's Second Law.

Explain: **zero**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Direction of displacment is down, but the platform pushes up.

Work done on C by the platform: **The acceleration is downward.**

Explain: **zero**

Would the answer to previous question change if the positive y-direction were chosen to point down? Direction of motion is down, but platform pushes up.

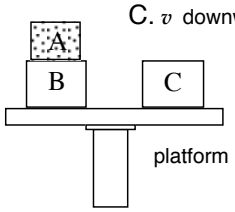
Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: Because the positive motion is upward and that is the way the platform is moving. So the force is positive

Explain: **positive**

Work done on B by A: Because the force is positive and the distance is positive so it is increasing.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: Because the force is negative. So a negative times a positive distance is a negative work.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Because there is a bigger normal force on the two blocks then on just C so the force over distance is bigger for A and B

Explain: **positive**

\Work done on C by the platform: Because if it were a negative force the block would be going beneath the platform

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Because the force is positive, but the distance is negative. So the two multiplied by each other is negative.

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? The distance is still negative so the work done is going to end up being negative because the product of the two is negative.

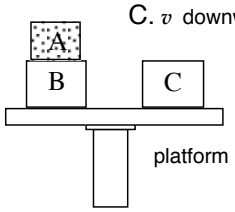
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: C exerts a negative force on the platform, and they are not accelerating so the platform exerts an equal and opposite force in the positive direction

Explain: **positive**

Work done on B by A: The force and direction are positive so the work is positive

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: A is not pushing B any distance

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: There is a greater force on B because of the addition of block A.

Explain: **positive**

\Work done on C by the platform: The force is still opposite to the weight which is negative

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: It has a positive force and a negative distance so its negative

Work done on C by the platform: **The acceleration is downward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? As long as the system is not in free fall, the platform still pushes up on C and C moves down so the work is negative

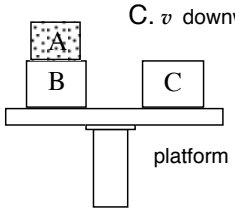
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: It is positve because upwards is positive, and the force acting ON block C by the platform is positive (pushing the block upwards)

Explain: **positive**

Work done on B by A: The work is positive because the force on C by the platform is in the positive direction.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: The work is negative because the force exerted by A on B is downwards, in the negative y direction.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: It is greater because the work done on B also includes the work done on A by the platform. Since the total weight of A and B are greater than that of C, the value of the work is larger.

Explain: **negative**

\Work done on C by the platform: It is negative because the force on C is opposite to the direction of travel.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The work is negative because the force is in the negative direction.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? The work is positive because the force exerted on C by the platform is in the positive direction.

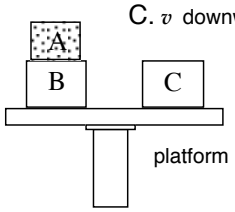
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: Force on c by plat is norm to plat and opp dir of weight

Explain: **positive**

Work done on B by A: force is pos, dir is pos and cos0 is pos

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: force is negative (towards ground) d is positive and cos0 is pos

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: force on b by plat is affected by a

Explain: **positive**

\Work done on C by the platform: norm to plat pushes up on c

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: force is pos

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? force is positive so is distance, and cos 0

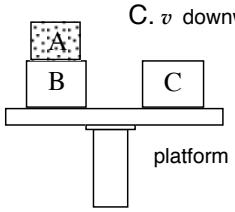
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: the force is upward and thus positive

Explain: **positive**

Work done on B by A: again the force is upward (positive) and the distance is as well. THis gives us FxD which is work and so it is positive too.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: the force on this block is downward (negative) and the distance moved is upward (positive) so force times distance gives us a negative number... negative work.

Explain. **No such work**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Acceleration is zero, and thus F is zero. THIs means that the work done on the system is also zero so ther isnt any work done.

Explain: **positive**

\Work done on C by the platform: the force of the platform on the block is upward and is the normal force.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: force is still positive (Normal force) but the distance is negative so work has a negative valueFxD=W(+F)x(-D)=(-W)

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? As always the opposite force of the block downward on the platform is the normal force back upward on the block. This gives us a positive direction for the force, but the distance is still negative. From this we know that the work on the block by the platform must be negative.

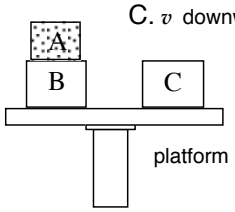
Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: because MG will be negative

Explain: **positive**

Work done on B by A:

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: because it is facing downwards and will be negative

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: because block B also has block A attached to it

Explain: **positive**

\Work done on C by the platform: same as above

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C:

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? it just is

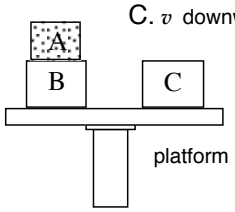
Explain: **unanswered**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The force is pointed directly up which is the positive direction

Explain: **positive**

Work done on B by A: It supplies a force and the block moves a displacement

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: It has a negative force with a positive displacement.

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: the same net force and the same displacement are acting on the two blocks so they are equal.

Explain: **positive**

\Work done on C by the platform: the force still points in the positive direction.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: It has positive force and negative displacement W=Fd making it negative

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? the displacement is still negative with a positive force. until the platform turns around it has a negative work.

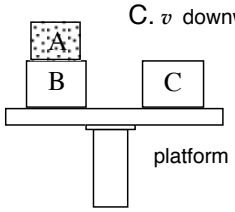
Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: force is upwards

Explain: **positive**

Work done on B by A: change in distance times force = work, so posititve * positive = positive

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: force downwards

Explain. **less**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: only the force oc C versus the total blocks work

Explain: **negative**

\Work done on C by the platform: moving down

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: negative force * positive distance = negative work

Work done on C by the platform: **The acceleration is downward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? moving down

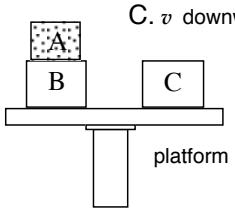
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The normal force of the platform points in the positive y direction.

Explain: **positive**

Work done on B by A: It is positive because the platform is moving upward.

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: It is positive because the displacement is upward.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: It is more because of the extra weight of block A on it.

Explain: **positive**

\Work done on C by the platform: The direction of the force still points up regardless of the velocity of the platform.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The platform is moving downward so the displacement would be negative.

Work done on C by the platform: **The acceleration is downward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? It is negative because the platform is travelling in the negative direction.

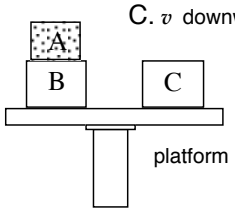
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **No such force**

Work done on C by platform: Moving at constant speed so no force.

Explain: **No such work**

Work done on B by A: No force

Explain: **No such work**

Compare | Work done on B by platform | to | Work done on C by platform |: No force because of constant speed.

Explain. **No such work**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Constant speed means no force.

Explain: **No such force**

\Work done on C by the platform: No force because of constant speed.

Explain: **No such work**

C. The platform now moves downward with decreasing speed.

Acceleration of C: No force because of constant speed.

Work done on C by the platform: **The acceleration is downward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? force of block c is negative

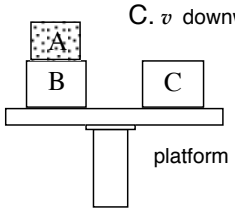
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: y positive direction is inthe upward direction and that is the direction of the force of the platform exerted on block C

Explain: **positive**

Work done on B by A: positive W = Fm and force is positive and mass cannot be negative

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: Force is in the downward direction, so it is negative

Explain. **unanswered**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform:

Explain: **positive**

\Work done on C by the platform: same as the first answer. The platform is still pushing upward on the block because of normal force

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: mass is positive and force is positive so work must be positive

Work done on C by the platform: **The acceleration is downward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? since acceleration is in the downward direction, it is negative and force = ma so force is negative therefore, work will be negative

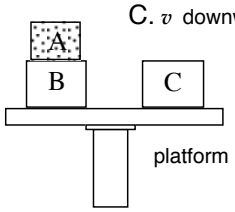
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The platform pushes up on c. C pushes down on the platform

Explain: **positive**

Work done on B by A: Not sure since we dont really know the definition of work yet.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: A is pushing down negative on block b

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: the platform has to raise both b and a but on the c side it only has to raise c

Explain: **positive**

\Work done on C by the platform: The platform is still holding c up... thats assuming that the platform isnt moving so fast as to cause free fall in c

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: c is lowering

Work done on C by the platform: **The acceleration is downward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? again the platform is still holding up c

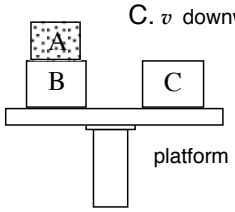
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: Since the elevator accelerates upward, the platform should exert an force in the same direction as the acceleration.

Explain: **negative**

Work done on B by A: Since the plateform exerts a positive force, the block should exert an opposite force to the platform.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: Block A is pressing down.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Since block B has a greater mass, the force of the platform must be greater to move it.

Explain: **zero**

\Work done on C by the platform: Since the platform moves at constant speed, no work is done on block c.

Explain: **zero**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Since the platform moves at constant speed, no work is done on block c.

Work done on C by the platform: **The acceleration is downward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? Since the elevator accelerates downward, the block should exert an force in the same direction as the acceleration.

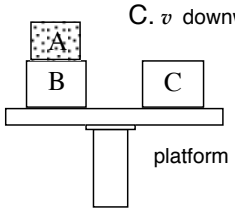
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: Because motion is directed upwards, in the positive direction, therefore the force causing the motion has to be in the same direction.

Explain: **positive**

Work done on B by A: It would require a positive amount of work to move the block in the positive direction

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: Because this work is due to the force of gravity

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Because there is another block on top of B so the platform has to work harder to lift B than it does to lift C

Explain: **positive**

\Work done on C by the platform: Because it is the normal force

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Because it is simply supporting the block not moving it

Work done on C by the platform: **The acceleration is downward.**

Explain: **zero**

Would the answer to previous question change if the positive y-direction were chosen to point down? Just kinda guessed, hopefully we will cover this in class ;)

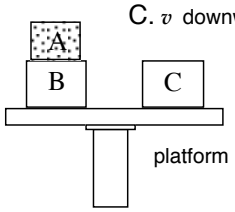
Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: I think because work is done on somthing which meanes there has to be some positive work done.

Explain: **positive**

Work done on B by A: because work is done on somthing which meanes there has to be some positive work exerted on the object.

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: The platform is the only object that is doing work on the box A and B.

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform:

Explain: **zero**

\Work done on C by the platform: Because it is not exerting any force

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Because the platform has to undo the work that was done when it was moving in the +y direction, there fore the work must be negative in order to move in the -y direction

Work done on C by the platform: **The acceleration is downward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? Because the box B is accerelating and therefore the force is greater then work of the platform must be positive in order to slove down the box c

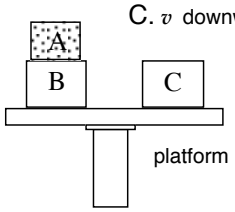
Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: the platform is pushing it up.

Explain: **positive**

Work done on B by A: since force is positive and distance is positive going up, and W = Fd, W is positive

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: the block a has no acceleration upwards, but does have acceleration downwards, so force is negative.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Force on block b is more as the force is the summation of (mass a + mass B)tims an acceleration.and since B and C have same mass, and is moving the same distance, force on B must be greater.

Explain: **positive**

\Work done on C by the platform: Normal Force

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: W = Fd and displacement is negative while force is positive, so negative

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down?
displacement traveled is negative, while force is positive

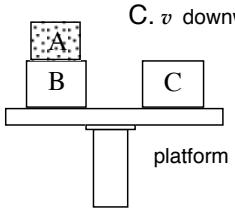
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: it is moving upwards pushing the block up wards so has to be positive

Explain: **positive**

Work done on B by A: movong upwards work =f*d positive force so positive work

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: a has gravity pushing on it making it negative

Explain. **less**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: b's mass is less so the force is less

Explain: **negative**

\Work done on C by the platform: moving downwards

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: moving downwards have negative force so negative work

Work done on C by the platform: **The acceleration is downward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? downward movement

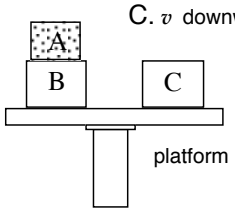
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The platform is pushing block c in the positive y direction. this is fighting the force of grvity.

Explain: **positive**

Work done on B by A: The platform is making the block move in the positive direction, and thus doing work.

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: While block A is exerting a force on block b, it isn't causing block b to do anything.

Explain. **No such work**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: The block is not changing how the platform moves.

Explain: **positive**

\Work done on C by the platform: The normal force is preventing the block from going through the platform.

Explain: **No such work**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Gravity is causing the box's movement. The platforms movement just gives it somewhere to move to.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? The platform is slowing down the box.

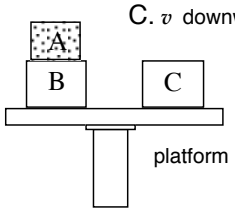
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: It is exerted in the positive y direction.

Explain: **positive**

Work done on B by A: Force is positive over a displacement.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: Force is negative over a displacement.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Since A presses down on B, the platform must do more work on the AB system than on C.

Explain: **positive**

\Work done on C by the platform: There must be a positive force to couterbalance the weights of the blocks.

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: A positive force is exerted over a displacement.

Work done on C by the platform: **The acceleration is downward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? A positive force is exerted over a displacement.

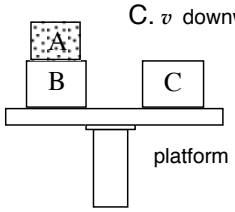
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The force is positive because it makes the block C move in a positive direction along with the platform.

Explain: **positive**

Work done on B by A: The work is done in the positive direction.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: A is working against block B, creating a negative work.

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: There is no movement of the blocks so the net forces for the two systems will be equal. This will create equal work.

Explain: **negative**

\Work done on C by the platform: The force on C is now going down, in the negative direction.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: The work will be negative, because the platform will be going down and it will be work in the downward direction.

Work done on C by the platform: **The acceleration is downward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? The work will be negative due to the downward acceleration and the forces exerted on block C.

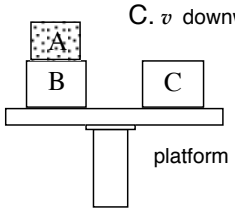
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: If the force on block C was 0, then the block would fall since gravity exerts a negative force on C. Same if the platform force was negative.

Explain: **positive**

Work done on B by A: The force of the platform on C is parallel to the direction of C's displacement, and both the force and displacement are positive.

Explain: **zero**

Compare | Work done on B by platform | to | Work done on C by platform |: Although block A exerts a force on Block B, Block B does not move in the direction of that force. Therefore the work done on B by A is zero.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Since Block B has the force of Block A pointing down on it, so the force on B by the platform must be greater than the force on C, or else the pile AB would not move up at the same rate as C.

Explain: **positive**

\Work done on C by the platform: As long as the platform touches block C, it will exert some force on it in the positive direction, even if it is going down. There is no way the platform could 'pull' on C and exert a negative force unless it was tied or glued to block C. The only way the force could be zero is if the platform was falling at the same speed the block would fall if it were free falling. That would mean it would not be falling at a constant speed though.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Since the force on Block C is in the opposite direction of the displacement of block C, the work will be negative.

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? As long as block C touches the platform, the platform will exert a force in the positive direction on C. But the platform is moving in the negative direction, so the work will be a positive force x a negative direction which equals negative work.

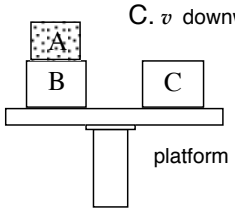
Explain: **no**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: Becuase block C is moving in the direction of the platform, therefore acceleration of the block C is moving in the direction of the platform and we know that Force = mass X acceleration

Explain: **positive**

Work done on B by A: We know that work = Force X distance, since force is positive and distance is positive work must be positive as well

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: Becuase Block A is pushing down on block B but block A is moving upward becuase the force of block B on a is greater than that of A

Explain. **equal**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: becuase they have the same mass

Explain: **negative**

\Work done on C by the platform: The absolute inverse of what happened above

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: which force the fore normal yes is positive, but the force that you are looking for is negative

Work done on C by the platform: **The acceleration is upward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? still moving downward

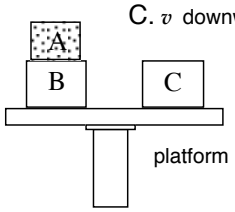
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The platform is pushing up on the block and up is in the positive direction.

Explain: **negative**

Work done on B by A: While the platform is pushing up on block C, block C must be pushing in the opposite direction on the platform, so negative.

Explain: **negative**

Compare | Work done on B by platform | to | Work done on C by platform |: Block B is pushing down on block A and down is negative, thereforce force is negative so work is negative.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: The work done on the platform by block B is equal to the work of block A and block B while the work done by block C is just that of block C.

Explain: **positive**

\Work done on C by the platform: The platform is still pushing the block up or else it would be in a freefall.

Explain: **positive**

C. The platform now moves downward with decreasing speed.

Acceleration of C: Work is force/time and since time is always positive and in this case force is positive, work must be positive.

Work done on C by the platform: **The acceleration is upward.**

Explain: **positive**

Would the answer to previous question change if the positive y-direction were chosen to point down? the platform is still holding the block up therefore working postively on the block.

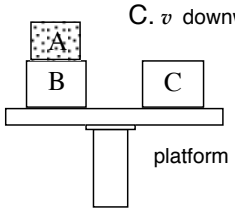
Explain: **yes**

END OF RESPONSE

Student#: **NAME: ,**

Three blocks, A, B, and C, are on an elevator platform. Blocks B and C have the same mass, and block A has less mass. Use the convention that the positive y-direction is up.

A. v upward and constant
B. v downward and constant
C. v downward and decreasing



A. The platform moves upward with constant speed.

Force exerted on C by platform:

Explain: **positive**

Work done on C by platform: The platform is going up, so there is a force exerted on the block by the platform.

Explain: **positive**

Work done on B by A: Work is need to move the block up in the postive direction.

Explain: **Positive**

Compare | Work done on B by platform | to | Work done on C by platform |: Block A is above block B, but the platform still moves up.

Explain. **greater**

B. The platform now moves downward with constant speed.

Force exerted on C by the platform: Block B has Block A to worry about.

Explain: **negative**

\Work done on C by the platform: the platform is moving down.

Explain: **negative**

C. The platform now moves downward with decreasing speed.

Acceleration of C: moving in the negavitve direction.

Work done on C by the platform: **The acceleration is downward.**

Explain: **negative**

Would the answer to previous question change if the positive y-direction were chosen to point down? the platform is still moving down.

Explain: **no**

END OF RESPONSE