

www.colorado.edu/physics/phys2210

Steven.pollock@colorado.edu

Ana Maria Rey (arey@jilau1.colorado.edu)

Rachel.pepper@colorado.edu

HW due Thursday

Online hw/participation due Tues

Exams Feb 10, Mar 17 (in class) + final

2

In Classical Mechanics,
can this equation be derived?

$$\vec{F}_{net} = \frac{d\vec{p}}{dt}$$

A) Yes

B) No

6

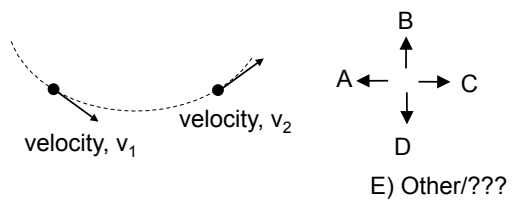
In Classical Mechanics,
can this equation be derived?

$$\vec{\tau}_{net} = \frac{d\vec{L}}{dt}$$

- A) Yes
- B) No

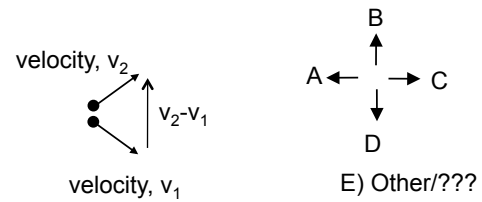
7

An object has velocity \mathbf{v}_1 at an earlier time,
and \mathbf{v}_2 later, as shown. What is the direction
of $\Delta\mathbf{v} = \mathbf{v}_2 - \mathbf{v}_1$?



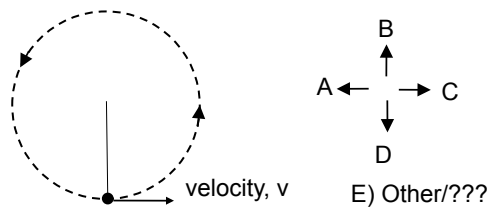
8

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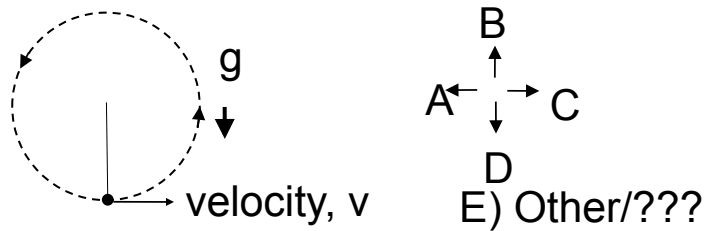
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A rock is twirled in a circle with constant speed by an astronaut in intergalactic space. At the moment shown, what is the direction of the acceleration of the rock?



10

A rock is twirled in a vertical circle near the surface of earth with constant speed.
At the moment shown, **what is the direction of the acceleration of the rock?**



11

Blocks A and B are on a frictionless table, connected by a massless string.
Your hand pushes on the back of block A.
Compare the force of your *hand* on A to the force of the *string* on B :

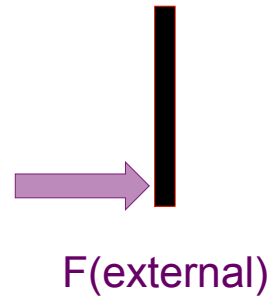
$|F|_{\text{hand on A}}$ is A) > B) < C) = $|F|_{\text{string on B}}$
D) Not enough info



12

If you push horizontally on the *bottom* end of a long, rigid rod of mass m (floating in space), what does the rod do?

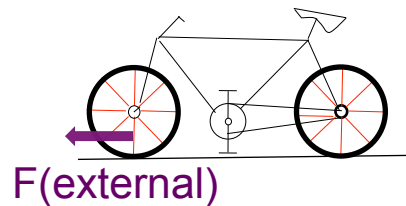
- A) Rotates in place, but the CM doesn't move
- B) Accelerates to the right, with $a_{CM} < F/m$
- C) Accelerates to the right, with $a_{CM} = F/m$
- D) Other/not sure/depends...



13

If you push forwards on a lower spoke as shown, the bike moves

- A) Left B) right C) no motion D) ??



14

If you push backwards on the *bottom* pedal of a fixed-gear bike as shown, the bike moves

A) Left B) right C) no motion D) ??

