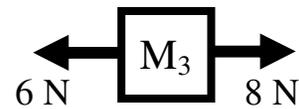


You will need these notes: "Forces and Newton's First Law" and "Types of Forces";

- For each of the following pairs of objects, which one has more inertia?
 

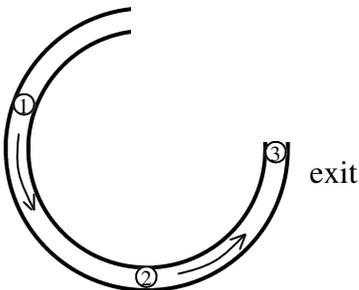
A. * A freight train or a car?	D. A 20 kg mass or a 10 kg mass?
B. A ping pong ball or a baseball?	E. A rock on the earth or a rock in space?
C. * A fast bowling ball or a slow bowling ball?	F. A fast baseball or a bowling ball at rest?
- Identify the following forces as F (applied), T,  $F_w$  (weight),  $F_f$  (friction), or  $F_N$ .
 

A. ____ Due to a string.	G. ____ You place a heavy object onto a board. The board will break if this is too small.
B. ____ Opposes weight for objects on surfaces.	H. ____ Always vertical.
C. ____ You push down on an object on a table, this increase.	I. ____ If a surface is tilted, this changes direction, too.
D. ____ Caused by gravity.	J. ____ Has the units of newtons.
E. ____ Would decrease on the moon.	K. ____ Doesn't exist for hanging objects.
F. ____ Decreases if a surface is smooth.	
- While a force is acting on an object, give three things that can happen (*top of "Newton's First Law" notes*).



- \*Calculate the net force on  $M_1$ .
  - Calculate the net force on  $M_2$ .
  - Calculate the net force on  $M_3$ .
- Which of the above masses:  $M_1$ ,  $M_2$ , or  $M_3$ ?
 

A. ____ Which could be at rest?	F. ____ Has balanced forces.
B. ____ Acceleration is negative.	G. ____ Could be changing direction.
C. ____ Acceleration is positive.	H. ____ Has unbalanced forces.
D. ____ Has a net force of 0 N.	I. ____ Could be a constant speed.
E. ____ Has a net force ( $F_{net} \neq 0$ )	J. ____ Could be slowing down to the left.



- A ball is moving inside a tube, as shown on the diagram at the left.
  - When it leaves the tube, will it have a circular path or a straight path?
  - What do we call any force that keeps an object moving in a circular path?
  - At point 1, draw an arrow to show the direction of the velocity of the object. Label it "v".
  - At point 2, draw an arrow (labeled "a") showing its acceleration.

- Static or kinetic friction?
 

A. ____ Slipping friction.	D. ____ Acts to keep an object from sliding.
B. ____ Gripping friction.	E. ____ Tries to stop an object that is already sliding.
C. ____ Depends on the surface's roughness	F. ____ Depends on weight of the object, if on a surface.

1A) Train (more mass)    1C) same (same mass)    4)  $-30+25 = -5\text{ N}$  or  $5\text{ N}$  left