

- 1. Inertia **E** **A** Any action that can cause motion.
- 2. Mass **C** **B** When the positive forces are equal to the negative forces.
- 3. Net force **D** **C** The amount of matter in an object
- 4. Force **A** **D** Total of all of the forces on an object.
- 5. Balanced **B** **R** Ability of an object to resist change of motion.



If each of the students above can pull with the same amount of force, which way will the object move?

Why? It won't. Balanced force

Which has more inertia?

- A train or a car?
- A ping pong ball or a baseball?
- A fast bowling ball or a slow bowling ball? *Same*
- A 20 kg mass or a 10 kg mass?
- A rock on the earth or a rock in space? *Same*

Balanced or Unbalanced Forces?

- B** An person sitting on a chair? **B** If $\Delta v = 0$?
- U** 20 N left and 30 N right? **U** If $a \neq 0$?
- B** An object at constant speed? **B** If $a = 0$?
- U** An accelerating plane? **U** If $\Delta v \neq 0$?
- B** An object at rest? **U** A stopping car?

A ball begins in the middle of a cart. The cart is quickly moved and the ball ends up against the right lip of the cart.

- A. Which way was the cart moved? *Left*
- B. Why did the ball end up at the right end of the cart?

Inertia

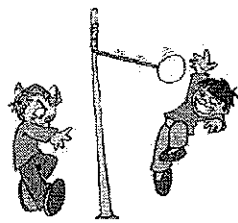


If the rope were to break, would the ball move in a straight line or a circle?

Straight line

What do we call any force pulling toward the center of a circle?

Centripetal



What is the net force on the above object? *0N*

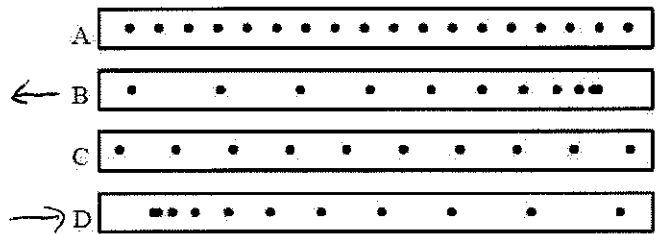
Is the object at equilibrium? *Yes*

What will be the acceleration of the object? *0 m/s²*

Is it moving or not? *It could be but no lines!*

	Calculate the Net Force	Which way will it accelerate?
	<i>-5N</i>	<i>L</i>
	<i>2N</i>	<i>R</i>
	<i>0N</i>	<i>0</i>

The tape timers below show the positions of five different objects each second.



- AC** Which have $F_{net} = 0$.
- AC** Which have balanced forces?
- BDE** Which have unbalanced forces?
- D** Which have a positive net force?
- B** Which have a negative net force?



For each tape timer, if there is a net force, draw its direction.

$F_{net} = 15\text{ N}$

If the net force on the object is 15 N, what is the magnitude of the force pulling to the left?

-15N

What is ΣF (sum of all forces) on the mass?

5N