1.) Determine if the following situations are a mass or a weight thing!

Mass?	Weight?	Situation
		It hurts more to get hit in the stomach with a bowling ball than a lacrosse ball when they're at the same speed.
		It's harder to push a medicine ball across the floor than it is to push a soccer ball across the floor.
		It's hard to hold your entire body up with just one hand.
		The propeller of a helicopter must be spinning for the helicopter to continue being above the ground.

2.) Which dot patterns indicate a net force of zero? Which dot patterns indicate a net force that is not zero?

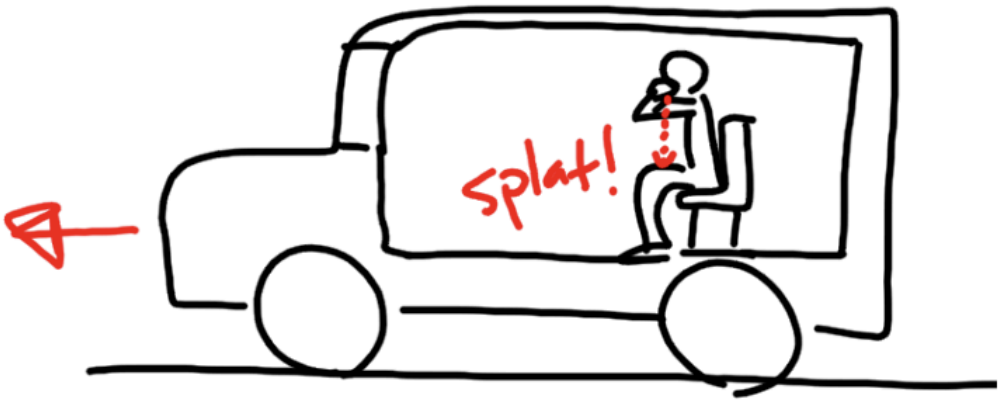
a) o o o o o o o o o

b) o o o o o o

c) o o o o o o

d) o o o o o

3.) While driving in a car at a constant speed, you drop your Wawa hoagie on the floor. From your point of view it drops straight down. What would its path look like from a pedestrian on the street?

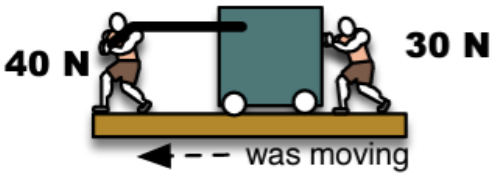


4.) When a car gets rear-ended, people in the vehicle can end up with neck injuries. You might want to say that their head jerked backwards, but what really happens? (1st law: Objects want to retain their state of motion unless a net force is applied.)

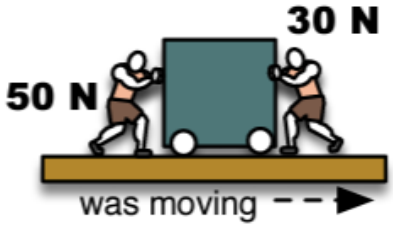
5.) Look at the “Seatbelt vs No Seatbelt” video.
a.) When the car crashes, what happens to the unbelted dummy? How does the 1st law relate here?

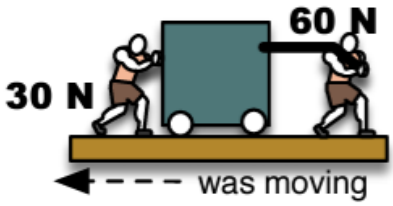
b.) In terms of the 1st law, what is the role of the seatbelt?

6.) For the following situations, determine the net force, and if the object will speed up, slow down, be stationary, or move with a constant speed.

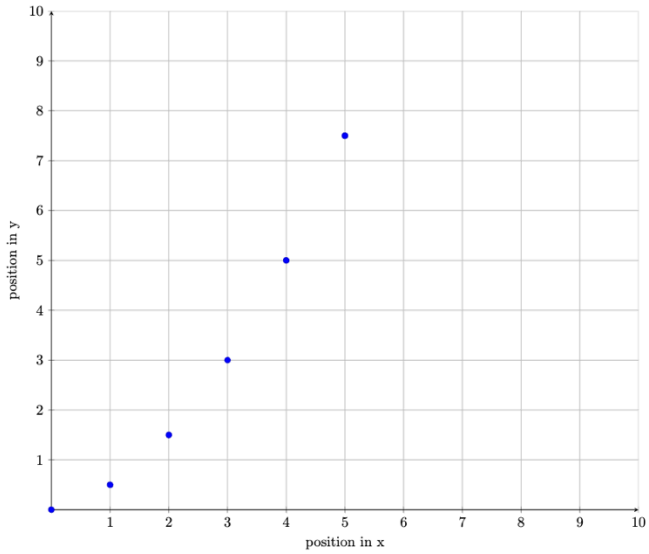




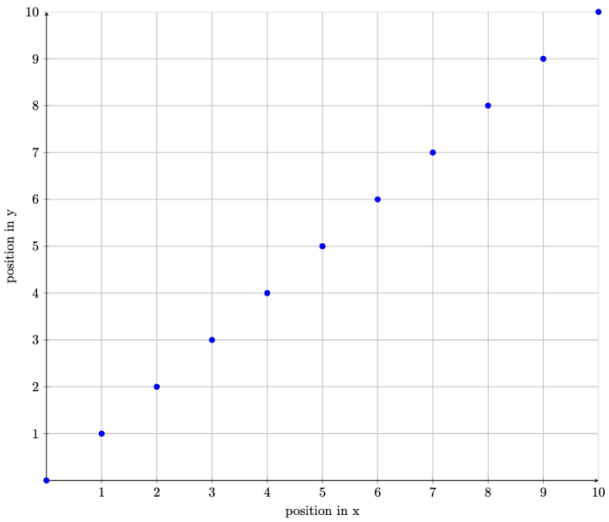




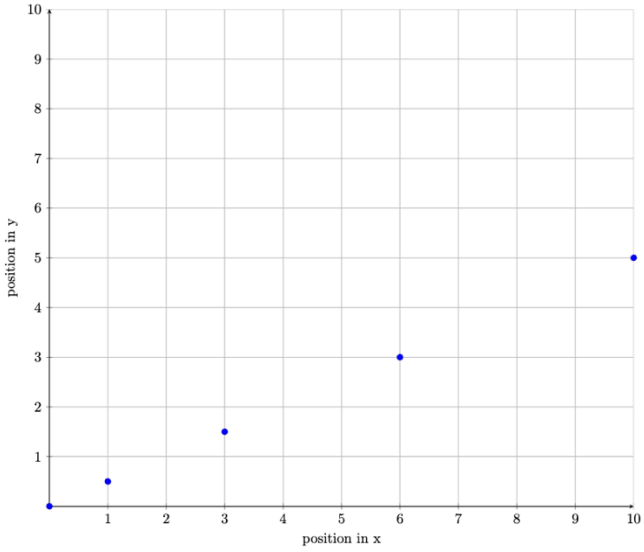
7.) Which direction(s) are experiencing an acceleration in the following scenarios?



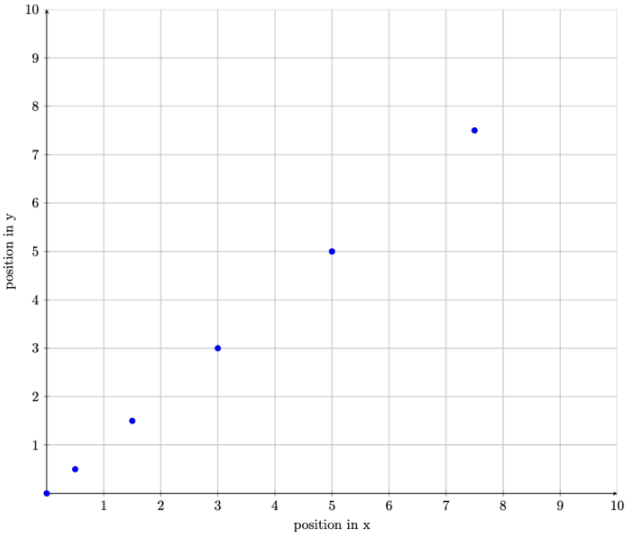
x-direction
y-direction
Both x and y
Neither



x-direction
y-direction
Both x and y
Neither



x-direction
y-direction
Both x and y
Neither



x-direction
y-direction
Both x and y
Neither