

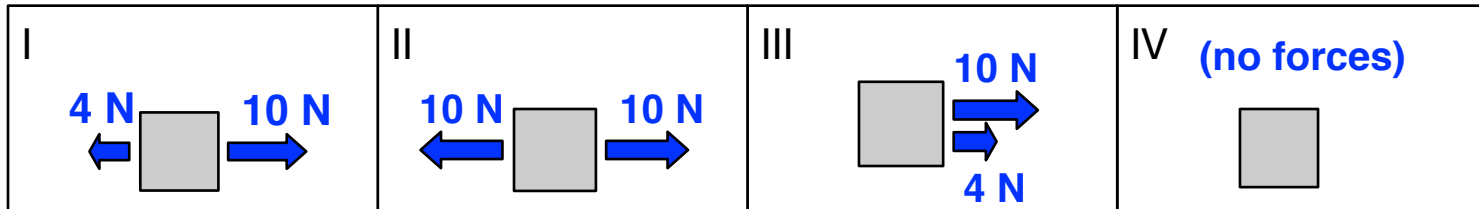
1. According to the First Law of Motion, objects should continue to move at a constant speed in the same direction if the net force is zero. A book given a quick shove across a table comes to a halt. What must you conclude about the situation?

2. According to the First Law of Motion, objects should continue to move at a constant speed in the same direction if the net force is zero. Yet the Moon orbits the Earth - in other words, it is turning in a circle around the Earth. What must you conclude about the situation (as Newton did many years ago)?

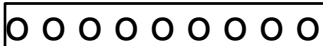
3. Two 5 Newton forces act horizontally on a block on a table with negligible friction. Under what circumstances would the block be at rest? Under what circumstances would the block move at a constant speed? Under what circumstances would the block speed up?

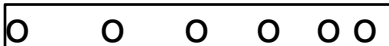
4. Which of the force configurations below are consistent with...

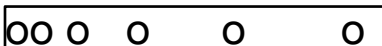
a) Constant speed. b) Stopped and staying stopped. c) Changing speed.

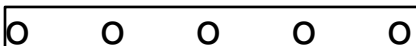


5. Which dot patterns indicate a net force of zero? Which dot patterns indicate a net force that is not zero?

a) 

b) 

c) 

d) 

6. How is the idea of Net Force different from the idea of Force in general?

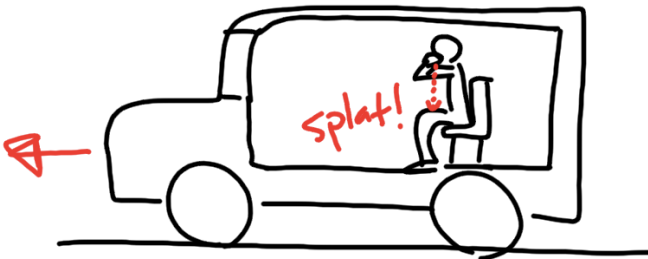
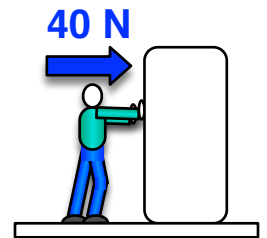
7. How much force is required to move at a constant velocity of 15 mi/hr? (What does your answer depend on?)

8. There are two forces on an object. One is 10 N, the other is 8 N. What is the largest Net Force the object could have? What is the smallest Net Force the object could have? Sketch both situations.

9. Why is friction a good thing?

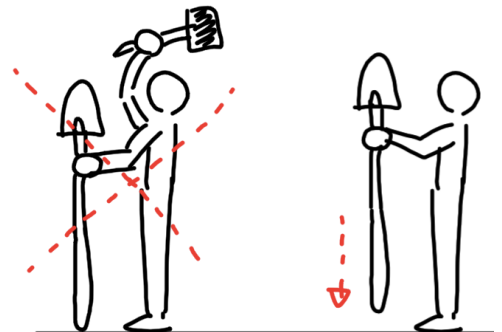
10. A person pushes a box with a force of 40 N.

- a) Under what circumstances would the box be speeding up?
- b) Under what circumstances would the box be doing a constant speed?
- c) Under what circumstances would the box be slowing down?



11. While riding on a bus at constant velocity, you accidentally drop your Jimmy Johns #17 Ultimate Porker with extra mayo onto your lap. From your point of view, it dropped straight down. What would its path look like from the viewpoint of a pedestrian on the street?

12. To tighten a shovel blade onto its handle, you could hammer it down. This is not recommended for obvious reasons. Another way is to hold the shovel vertically and tap the end of the handle against the ground. Why does that work?



13. When a car gets rear-ended, people in the vehicle can end up with neck injuries. You might want to say that their heads get jerked backward, but what really happens? (Think of the 1st Law: the car and person were at rest before the impact.) What safety device do cars have to prevent this sort of injury?