

Unbalanced Forces and Velocity

Name _____
Date _____
Period _____

Vocabulary

Motion: _____

Speed: _____

Velocity: _____

Force: _____

Newton: _____

Net Force: _____

1. Fred and Sue are trying to move a couch. Fred is pushing on the couch with a force of 38 Newton's and Sue is pulling on the couch with a force of 29 Newton's. Assuming the forces are in the same direction, what is the net force being placed on the couch?

2. Isaac and his mom were driving to the store when their car ran out of gas. Since the gas station was just around the corner, they decided to push the car. Isaac pushed on car with a force of 45 Newton's. Isaac's mom pushed on the car with a force of 42 Newton's. The car wouldn't move. A man driving by saw them struggling and stopped to help. He pushed on the car with a force of 49 Newton's. Now there were three forces all pushing in the same direction. What was the net force being pushed on the car?

3. Mr. Smith's class and Mrs. Jones's class are having a tug-of-war. Both classes are tugging as hard as they can, but the rope is not budging in either direction. What does this mean about the forces being placed on the rope by each class? What is going to need to happen before the rope will move either direction? Use complete sentences!

4. A sail boat is sailing against the current, up river. The river is flowing South with a force of 39 Newton's. The boat's engine is pushing the boat North with a force of 48 Newton's. What is the net force of the boat and in which direction?

5. What are two of the ways that the velocity of a car can change?

6. If you went for a jog around the block and jogged at a constant speed of 7 miles per hour, what is happening to your velocity? Why?

7. The red bumper car was heading straight for the yellow bumper car. When the two bumper cars collided, the yellow car pushed the red bumper car backwards. What two things could explain why the red car got pushed backwards? Use complete sentences.

8. Bert and Ernie were arguing over who gets to ride a go cart. Bert was pushing East on the go cart with a force of 22 Newton's and Ernie was pushing West on the go cart with a force of 22 Newton's. What was net force being placed on the go cart? Which direction did the go cart roll?

9. Gomer's lawnmower is self propelled, but it doesn't work too well. When the mower is sitting in the grass it will not move. Gomer knows that the grass is holding the lawn mower in place with a force of 17 Newton's. The lawnmower can move forward with a force of 11 Newton's. How hard is Gomer going to have to push on the lawnmower to make it move forward?