Name: Date: Period:

P1-P3 Refresher

Unit P1: Motion

1. Define the following terms:
   (a) Velocity:

   Solution: how fast an object is moving and its direction (measured in m/s)

   (b) Acceleration:

   Solution: the rate that velocity changes (measured in m/s/s or m/s^2)

2. What is the acceleration of a car moving at a constant speed in a straight line? How do you know?

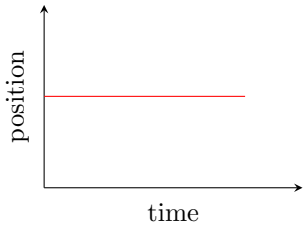
   Solution: zero. The velocity is not changing.

3. What are the three ways to accelerate?

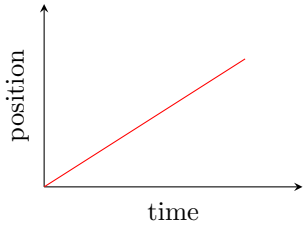
   Solution: speed up, slow down, change direction

4. Draw the following distance-time graphs.

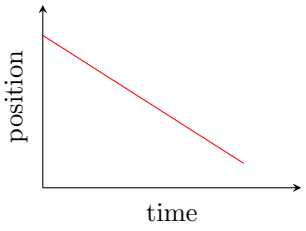
   (a) Not moving

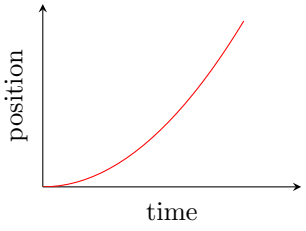
   (b) Forward at a constant speed

   (c) Backward at a constant speed

   (d) Forward and speeding up

Unit P2: Measurement

5. Fill in the blanks on this table:

Quantity	**Tool**	**Units**
		mL
distance		
	thermometer	
		seconds
	balance	

6. Round these numbers to two decimal places
   (a) 6.23842

   (b) 0.31132

Unit P3: Forces & Newton's Laws

7. What is **inertia** and what law does it correspond to?

   Solution: Inertia is the tendency of object's to resist changes in motion. It corresponds to Newton's First Law.

8. Which of Newton's laws best explains each of these? Explain your answer in at least one complete sentence.
   (a) Jen goes shopping at the grocery store. She notices that as she adds items to the cart it gets harder to push.

   Solution: Second Law. As the mass of the cart increases, it accelerates less.

   (b) A rocket pushes fuel down so that the fuel can push the rocket up.

   Solution: Third law. The action is the rocket pushing the fuel down; the reaction is the fuel pushing the rocket up.

   (c) When you are in a car and you slam on your brakes, your body keeps moving forward.

   Solution: First law. Your body is in motion. It tries to stay in motion even though the car stops

9. You jump off the ground by pushing off of it. The action force is the force of your feet pushing the ground down. What is the reaction force?

   Solution: The force of the ground pushing your feet up.

10. What is the difference between mass and weight?

    Solution:

    - mass is a measure of an object's inertia
    - weight is the force of gravity on the object

11. If you go to a different planet, what happens to your mass and your weight?

    Solution: Your mass stays the same, but your weight changes.