

Name: _____

_____ / 17

Chapter 2.1 Homework
Conceptual Physics

Parent Signature: _____

Reviewing Concepts

1. Compare and contrast the distance and displacement variables. (1)
2. Olivia is doing a motion experiment with a car on a track. She records a negative displacement. Describe the motion of the car. (1)
3. What is the difference between speed and velocity? (1)
4. Can an object have negative speed? Can it have negative velocity? Explain. (1)
5. What two values are needed to determine average velocity? (1)
6. If an object has an acceleration of 20 cm/s^2 , what do you know about how its velocity changes over time? (1)
7. Provide two ways the unit “meters per second per second” can be abbreviated. (1)
8. An object accelerates if its velocity changes. What is the other way an object can accelerate (without changing speed)? (1)

9. What is the acceleration of a car moving at a constant velocity of 50 mph? (1)

Solving Problems

1. Ryan's family drives from San Diego to Phoenix. They continue from Phoenix to Flagstaff, and finally back to San Diego. Their travel is graphically represented on page 48.

a. What distance did this family travel? (0.5)

b. What is their displacement? (0.5)

2. A car travels in one direction for 30 min at an average velocity of 20 km/h. What is the distance the car travels? (1)

3. Emma is riding on a train. The train is moving at 50 m/s. Emma walks down the aisle at 1 m/s relative to the train in the same direction the train is moving. What is her relative velocity? (1)

4. A car accelerates from 0 to 20 m/s in 10 seconds. Calculate its acceleration. (1)

5. During a race, you speed up from 3 m/s to 5 m/s in 4 s.

a. What is your change in velocity? (0.5)

b. What is your acceleration? (0.5)

6. Marcus is driving his car at 15 km/h when he brakes suddenly. He comes to a complete stop in 2 s. What was his acceleration in km/h/s? Was his acceleration positive, negative, or zero? (1)

7. You start from rest and ski down a hill with an acceleration of 2 m/s^2 . Find your velocity at the following times: (2)

a. 1 s

b. 2 s

c. 3 s

d. 10 s