Name _____ Class _____ Date _____

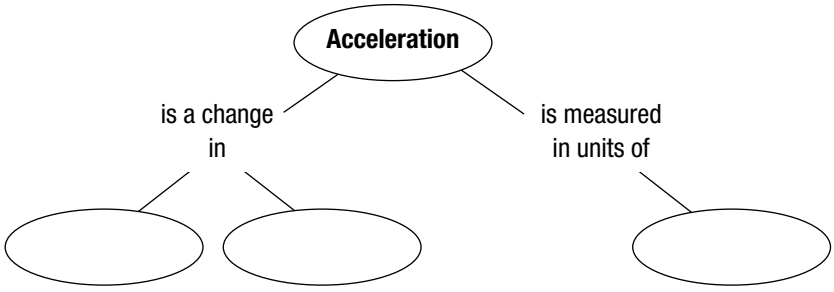
Section 11.3 Acceleration

(pages 342–348)

This section describes the relationships among speed, velocity, and acceleration. Examples of these concepts are discussed. Sample calculations of acceleration and graphs representing accelerated motion are presented.

Reading Strategy (page 342)

Summarizing Read the section on acceleration. Then complete the concept map to organize what you know about acceleration. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.



What Is Acceleration? (pages 342–345)

1. The rate at which velocity changes is called _____.

2. In terms of speed and direction, in what ways can an object accelerate? _____

_____

3. Because acceleration is a quantity that has both magnitude and direction, it is a(n) _____.

4. Is the following sentence true or false? Acceleration is the result of increases or decreases in speed. _____

5. Ignoring air resistance, a rock in free fall will have a velocity of _____ after 4.0 seconds.

6. A horse on a carousel that is moving at a constant speed is accelerating because _____.

7. Describe constant acceleration. _____

_____

Calculating Acceleration (pages 345–346)

8. Write the equation used to calculate the acceleration of an object.

_____

9. Is the following sentence true or false? When the final velocity is less than the initial velocity of an object, the acceleration is negative. _____

10. A skateboarder begins down a ramp at a speed of 1.0 m/s. After 3 seconds, her speed has increased to 4.0 m/s. Calculate her acceleration.

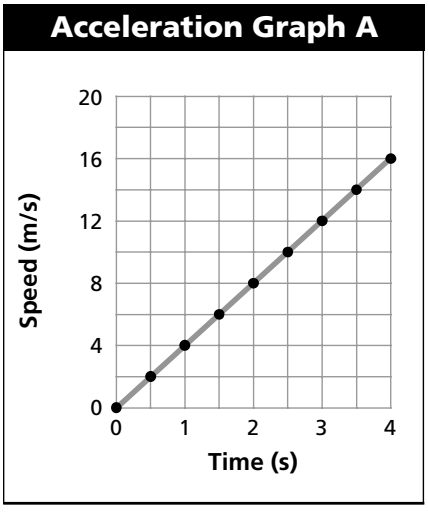
a. 1.0 m/s^2 b. 3.0 m/s^2

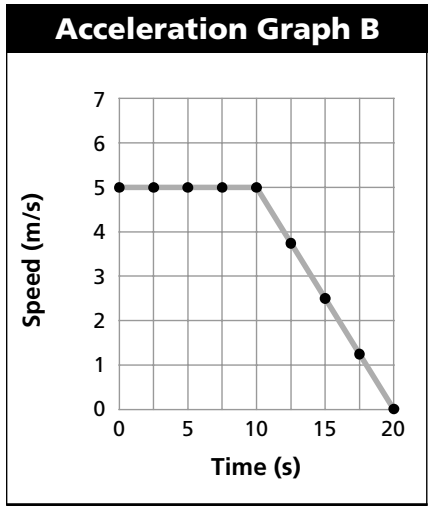
c. 5.0 m/s^2 d. 9.8 m/s^2

Graphs of Accelerated Motion (pages 346–348)

11. A speed-time graph in which the displayed data forms a straight line is an example of a(n) _____.

For questions 12 through 15, refer to the graphs below.





12. Graph A represents the motion of a downhill skier. How fast was the skier moving after traveling down the hill for 2.5 seconds? _____

13. In which graph does an object move at constant speed during the first 4 seconds? _____

14. Graph B represents the motion of a mountain biker. What is the biker's speed at times of 10 s and 20 s? _____

15. Determine the acceleration of the mountain biker during the 10 second to 20 second time period. Show your work.

_____

_____

16. The plotted data points representing acceleration in a distance-time graph form a(n) _____.

Instantaneous Acceleration (page 348)

17. The measure of how fast a velocity is changing at a specific instant is known as _____.