Motion

Multiple Choice

Write the letter of the correct answer on the line at the left.

____ **1.** Speed measurements are given in units of

a. distance/time. **b.** time^2/distance.
c. distance/time^2. **d.** time/distance.

____ **2.** Measurements of acceleration are given in units of

a. distance/time. **b.** time^2/distance.
c. distance/time^2 **d.** time/distance.

____ **3.** An airplane that moves 50 meters in one second has a speed of

a. 500 cm/s. **b.** 1800 km/h.
c. 180,000 m/h. **d.** 5,000 m/h.

____ **4.** How many centimeters are in a kilometer?

a. 100 **b.** 100,000
c. 1,000 **d.** 1,000,000

____ **5.** A car traveling at 25 m/s speeds up to 40 m/s over a period of 15 seconds. The average acceleration of the car is

a. 1 m/s^2.
b. 15 km/s^2.
c. 15 m/s^2.
d. cannot be calculated from the information given

____ **6.** A rider finishes a 120-km bicycle trip in 3 hours. The average speed of the rider is

a. 360 km/hr. **b.** 3.6 m/s.
c. 40 km/hr. **d.** 4 m/s^2.

____ **7.** The trunk of a certain tree is 50 cm thick. Each year it gets thicker by 1 cm. How thick will the tree trunk be in 50 years?

a. 50 cm **b.** 2,500 cm
c. 5,000 cm **d.** 100 cm

____ **8.** It can be important to know the velocity of an object, not just its speed, because

a. velocity also tells acceleration.
b. speed is always an average.
c. velocity also tells direction.
d. speed is only useful for fast-moving objects.

© Pearson Education, Inc., publishing as Pearson Prentice Hall. All rights reserved.

____ **9.** A runner starts a 5-km race at 10:15 a.m. and finishes at 10:35 a.m. Given this information, you can calculate the runner's

a. velocity.
b. average speed.
c. acceleration.
d. reference point.

____ **10.** An airplane flies 80 km in 10 minutes and then flies 100 km in 20 minutes. The average speed of the airplane is

a. 60 km/h.
b. 360 km/h.
c. 8 km/h.
d. none of the above

Completion

Fill in the line to complete each statement.

11. An object is in motion if it is moving relative to a(n) _____.

12. To calculate the acceleration of an object moving in a straight line, divide the change in _____ by the time during which the acceleration occurs.

13. The velocity of an object gives both its speed and _____.

14. You can calculate an average _____ if you know both the total distance and the total time of a trip.

True or False

If the statement is true, write true. *If it is false, change the underlined word or words to make the statement true.*

_____ **15.** An object <u>cannot</u> be accelerating if it has a constant speed.

_____ **16.** The information needed for describing <u>velocity</u> is distance/time and direction.

_____ **17.** To determine the speed of an object, divide distance by <u>acceleration</u>.

_____ **18.** An object is in motion only if its distance from a reference point is <u>stationary</u>.

_____ **19.** If you know the <u>speed</u> of an object, you also know the direction of movement.

© Pearson Education, Inc., publishing as Pearson Prentice Hall. All rights reserved.

Name _____ Date _____ Class _____

Motion ▪ *Chapter Test*

Essay

Write an answer for each of the following questions. If you need more space, use a separate sheet of paper.

20. You are seated in a train that is stopped at a station. Use two different reference points to explain that the train can appear to be moving and not moving.

_____

_____

21. Even if an object is moving at a constant speed, how can it accelerate? Give two examples.

_____

_____

22. What is the advantage of using the International System of Units (SI)?

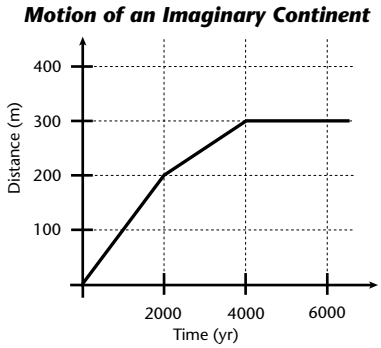
_____

_____

_____

Using Science Skills: Interpreting Graphs

The graph below shows the movement of an imaginary continent. Use the graph to answer questions 23 through 25. If you need more space, use a separate sheet of paper.



23. **Interpreting a Graph** How far does the continent move in the first 1,000 years?

_____

24. **Calculating** What is the average speed of the continent over the entire 6,000-year period?

_____

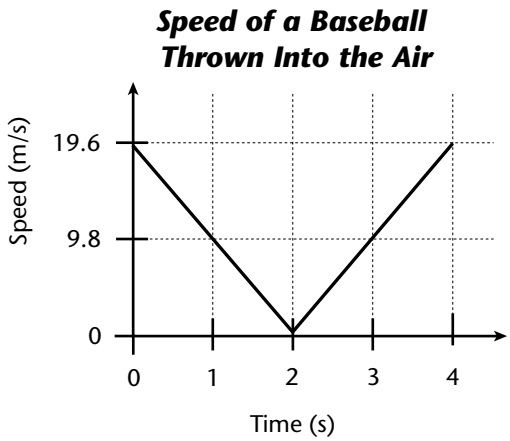
25. **Applying Concepts** Does the motion of the continent accelerate over the 6,000-year period? Explain.

_____

© Pearson Education, Inc., publishing as Pearson Prentice Hall. All rights reserved.

Using Science Skills

The graph below plots the speed of a baseball thrown straight up in the air. Answer the following questions on the lines provided.



26. Interpreting Graphs What happens to the baseball at 2 seconds?

_____

27. Interpreting Graphs What happens to the baseball at 4 seconds?

_____

28. Interpreting Graphs What is the velocity of the baseball at 3 seconds?

_____

Essay

Write an answer for each of the following questions. If you need more room, use a separate sheet of paper.

29. Why could it be important to use velocity instead of speed when you describe how a storm is moving?

_____

_____

_____

_____

_____

30. Does Earth's surface look the same today as it did 250 million years ago? Explain your answer, using the theory of plate tectonics.

_____

_____

_____

_____

_____

© Pearson Education, Inc., publishing as Pearson Prentice Hall. All rights reserved.