Name _____ Date _____ Class _____

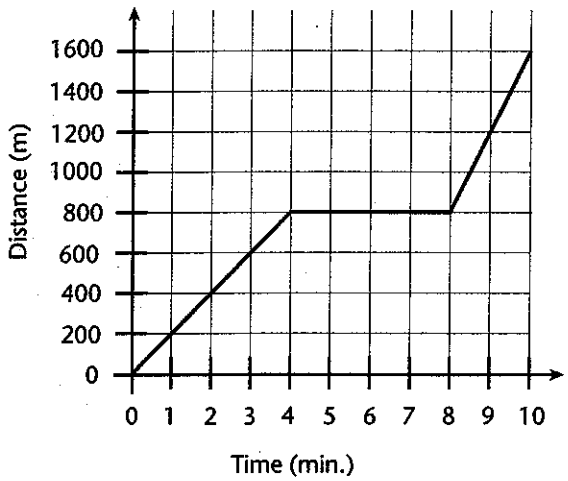
SECTION 9-1 REVIEW AND REINFORCE

Describing and Measuring Motion

◆ Understanding Main Ideas

Use the following paragraph and graph to answer questions 1 through 5. Write your answers on a separate sheet of paper. Remember to include units in your answers.

On Saturday, Ashley rode her bicycle to visit Maria. Maria's house is directly east of Ashley's. The graph shows how far Ashley was from her house after each minute of her trip.



1. Ashley rode at a constant speed for the first 4 minutes of her trip. What was her constant speed?
2. What was her average speed for the entire trip?
3. What was her average velocity for the entire trip?
4. Ashley stopped to talk with another friend during her trip. How far was she from her house when she stopped?
5. Ashley's brother rode beside her for several minutes. During this time, was he moving relative to Ashley?

◆ Building Vocabulary

From the list below, choose the term that best completes each sentence. Write your answers on the line provided.

motion	slope	foot
reference point	yard	meter
average	velocity	speed

6. The steepness of the line on a graph is its _____.
7. An object is in _____ when its distance from a(n) _____ is changing.
8. Speed in a given direction is _____.
9. _____ can be calculated if you know the distance that an object travels in one unit of time.
10. The basic SI unit of length is the _____.

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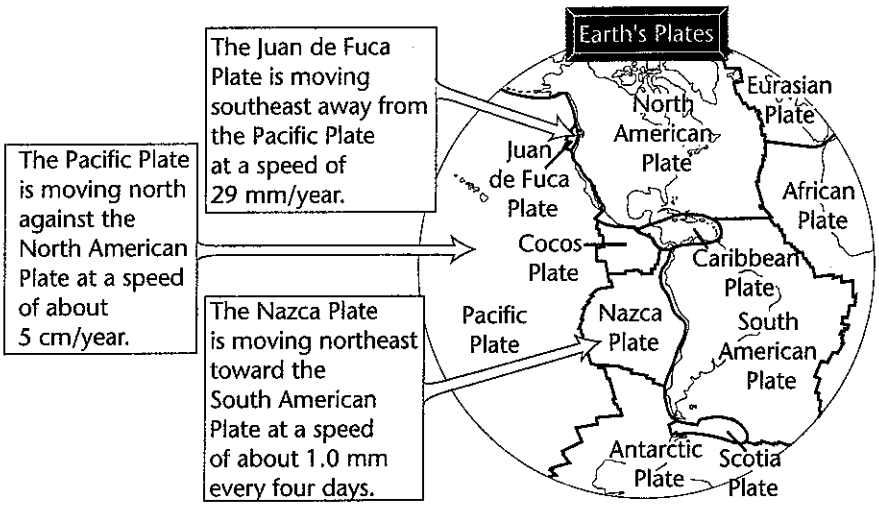
SECTION 9-2 **REVIEW AND REINFORCE**

Slow Motion on Planet Earth

◆ Understanding Main Ideas

Study the map below and answer the following questions in the spaces provided. Remember to include units in your answers as needed.



1. Which plate is moving the fastest?

_____

2. Which plate is moving the slowest?

_____

3. If the Juan de Fuca Plate continues to move away from the Pacific Plate at the same speed as shown on the graph, how many meters will it move in 10,000 years?

_____

4. About how many centimeters does the Nazca Plate move in one year?

_____

◆ Building Vocabulary

Write your answer to the following question on a separate sheet of paper.

5. Briefly describe the theory of plate tectonics. Include in your answer the definition of plates.

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SECTION 9-3 REVIEW AND REINFORCE

Acceleration

◆ Understanding Main Ideas

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

_____ **1.** If a train is slowing down, it <u>is</u> accelerating.

_____ **2.** To find the acceleration, you must calculate the change in <u>distance</u> during each unit of time.

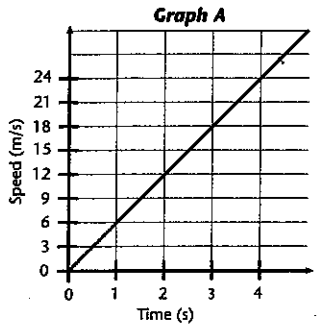
_____ **3.** A Ferris wheel turning at a constant speed of 5 m/s <u>is not</u> accelerating.

_____ **4.** An airplane is flying west at 200 km/h. Two hours later, it is flying west at 300 km/h. Its average acceleration is <u>100</u> km/h^2.

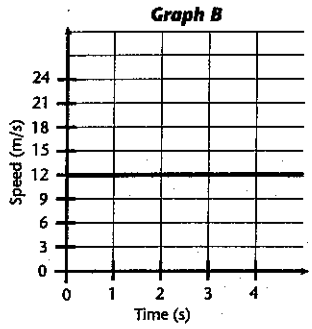
_____ **5.** Graph A plots a race car's speed for 5 seconds. The car's rate of acceleration is <u>6</u> m/s^2.

_____ **6.** Graph B plots the same car's speed for a different 5-second interval. The car's acceleration during this interval is <u>12</u> m/s^2.

Graph A



Graph B



◆ Building Vocabulary

From the list below, choose the term that best completes each sentence. Write your answers on the line provided.

acceleration velocity speed distance

7. _____ occurs when the velocity of an object changes.

8. When you say that a race car travels northward at 100 km/h, you are talking about its _____.

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Choose the letter of the correct answer.

1. On a graph showing distance versus time, a horizontal line represents an object that is
   [A] moving at a constant speed. [B] increasing its speed.
   [C] not moving at all. [D] decreasing its speed.

2. Gallons, inches, and pounds are all
   [A] distances. [B] units. [C] reference points. [D] velocities.

3. Changing direction is an example of a kind of
   [A] speed. [B] acceleration. [C] velocity. [D] constant rate.

4. In 1,000 years, a plate that moves 5 cm/yr will travel
   [A] 5 kilometers. [B] 50 meters. [C] 50 kilometers. [D] 50 centimeters.

5. A train that travels100 kilometers in 4 hours is traveling at what average speed?
   [A] 25 km/h [B] 2 km/h [C] 100 km/h [D] 50 km/h

6. If velocity is measured in kilometers per hour and time is measured in hours, the unit of acceleration is
   [A] kilometers. [B] kilometers per hour. [C] hours. [D] kilometers per hour per hour.

7. The basic SI unit of length is the [A] inch. [B] mile. [C] meter. [D] foot.

8. If a bicyclist travels 30 kilometers in two hours, her average speed would be
   [A] 2 km/h. [B] 15 km/h. [C] 60 km/h. [D] 30 km/h.

9. If you know a car traveled 300 kilometers in 3 hours, you can find its
   [A] average speed. [B] velocity. [C] acceleration. [D] direction.

Fill in the word or phrase that best completes the statement(s).

10. The statement that the motion of a hurricane is 20 kilometers per hour in an easterly direction is a description of the hurricane's _____.

11. If a car is speeding up, its initial speed is _____ than its final speed.

Fill in the word or phrase that best completes the statement(s).

12. If a ship has an acceleration of 3 km/h^2 , its speed is expressed in the unit _____.

13. Speed that does not change is referred to as _____ speed.

14. When riding a bicycle past a building, you are not moving relative to the _____.

15. A golf ball _____ when either its speed or direction changes.

16. The basic SI unit of length is the _____.

17. _____ occurs when an object slows down.

18. Acceleration is the rate of change in _____.

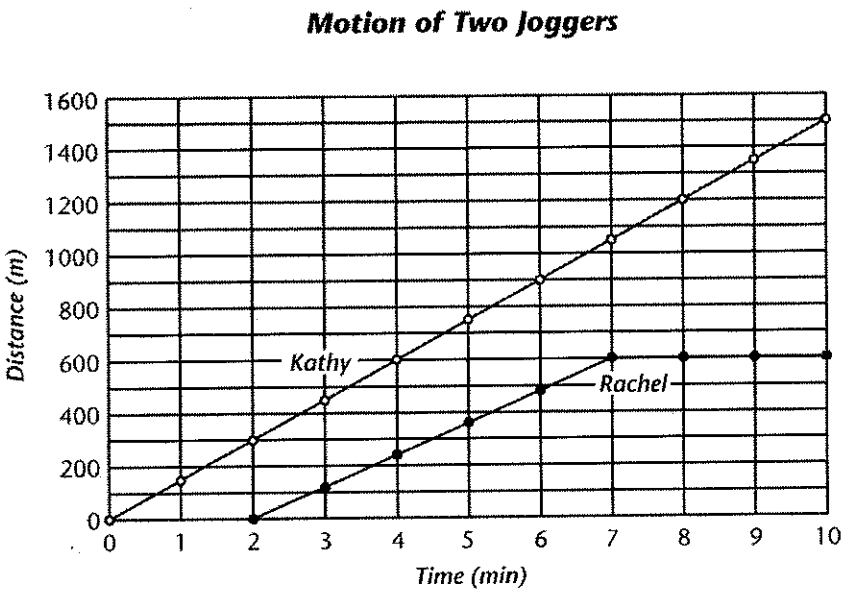
If the statement is true, write true. If it is false, change the underlined word or words to make the statement true.

19. A cyclist travels 20 km in half an hour. Her average speed is <u>10 km/h</u>.

20. If a toy car traveling at 10 cm/s passes a toy car moving at 10 cm/s in the opposite direction, both cars have the same <u>velocity</u>.

21. A straight line on a <u>motion</u> graph indicates constant speed.

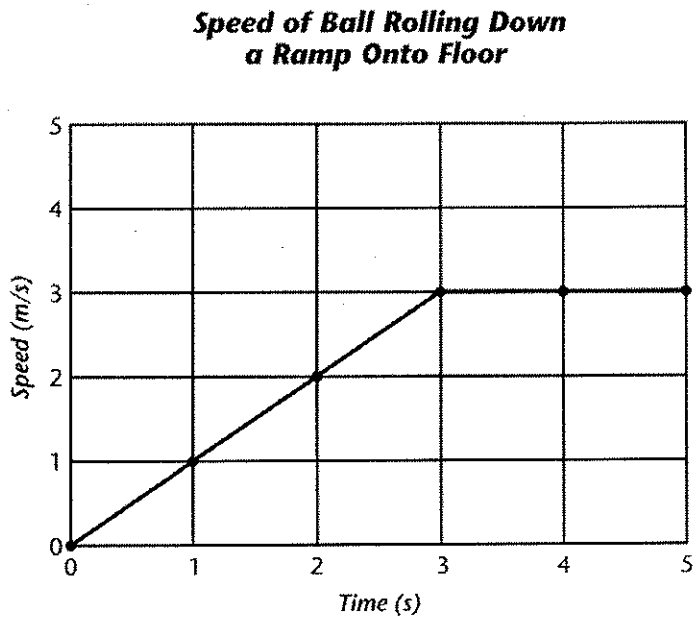
Use the graph to answer the question(s).



22. How far did Kathy jog in the first 4 minutes?

23. How would you describe Kathy's motion? What does such motion mean?

Use the graph to answer the question(s).



24. What happened to the speed of the ball during the final two seconds?

25. What is the acceleration of the ball between 0 and 3 seconds?

26. Does the graph indicate that the ball decelerated? Explain your answer.

Write an answer to the following question(s).

27. Explain how to find the average speed of a car that travels 300 kilometers in 6 hours. Then find the average speed.

28. You are in a speedboat on a river moving in the same direction as the current. The speedometer on the boat shows that its speed is 20 km/h. However, a person on the shore measures the boat's speed as 23 km/h. How is this possible?

29. Car A is traveling north at 30 m/s and Car B is traveling south at 30 m/s. If both cars have a southward acceleration of 1 m/s^2 , compare their speeds after 1 second. Explain your comparison.

30. Two satellite tracking stations are on plates that are moving toward each other. One plate is moving east at a rate of 5 cm/yr. The other plate is moving west at a rate of 5 cm/yr. If the stations are now separated by 200 km, in how many years will the stations be 198 km apart? Explain.