

## Chapter 4 Test Linear Motion

**True or False Questions***Circle the correct answer.*

- T**     **F**     1. The rate at which velocity changes with time is called acceleration.
- T**     **F**     2. The SI unit of acceleration is meters per second.
- T**     **F**     3. When a car rounds a corner at a constant speed, its acceleration is zero.
- T**     **F**     4. A ball is thrown into the air. At the highest point, the ball has zero velocity and zero acceleration.
- T**     **F**     5. As a ball falls freely, the distance it falls each second is the same.

**Multiple Choice Questions***Choose the best answer to each question and write the appropriate letter in the space provided.*

- \_\_\_\_\_ 6. Speed is
- a. a measure of how fast something is moving.
  - b. the distance covered per unit time.
  - c. always measured in terms of a unit of distance divided by a unit of time.
  - d. all of the above
- \_\_\_\_\_ 7. One possible unit of speed is
- a. miles per hour.
  - b. kilometers per hour.
  - c. light years per century.
  - d. all of the above
- \_\_\_\_\_ 8. When you look at the speedometer in a moving car, you can see the car's
- a. instantaneous speed.
  - b. average speed.
  - c. instantaneous acceleration.
  - d. average acceleration.
  - e. average distance traveled.
- \_\_\_\_\_ 9. Suppose you take a trip that covers 240 km and takes 4 hours. Your average speed is
- a. 480 km/h.
  - b. 240 km/h.
  - c. 120 km/h.
  - d. 60 km/h.
- \_\_\_\_\_ 10. Acceleration is defined as the CHANGE in
- a. position divided by the time interval.
  - b. velocity divided by the time interval.
  - c. time it takes to move from one speed to another speed.
  - d. time it takes to move from one place to another place.

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- \_\_\_\_\_ 11. Suppose you are in a car that is going around a curve. The speedometer reads a constant 30 miles per hour. Which of the following is NOT true?
- You and the car are accelerating.
  - Your speed is constant.
  - Your velocity is constant.
  - Your acceleration is constant.
- \_\_\_\_\_ 12. Suppose a car is moving in a straight line and steadily increases its speed. It moves from 35 km/h to 40 km/h the first second and from 40 km/h to 45 km/h the next second. What is the car's acceleration?
- 5 km/h·s
  - 10 km/h·s
  - 35 km/h·s
  - 40 km/h·s
- \_\_\_\_\_ 13. A ball is thrown straight up. At the top of its path its acceleration is
- 0 m/s.
  - about 5 m/s.
  - about 10 m/s.
  - about 20 m/s.

**Math Problems**

*Solve the following problems in the space provided. Show all work.*

14. What is the average speed of a cheetah that runs 70 m in 2.5 seconds?
15. An apple falls from a tree and one-half second later hits the ground. How fast is it falling when it hits the ground?

**Essay Question**

*On a separate sheet of paper, answer the following question.*

16. Write a short paragraph explaining what acceleration is and why a car is accelerating as it rounds a corner.