

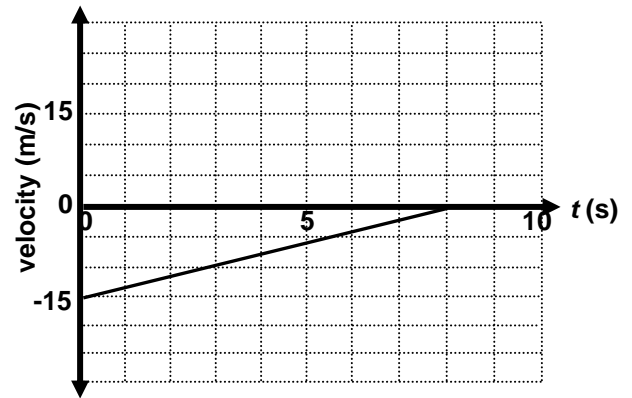
CH 2, 3, & 6 PHYSICS REVIEW - MOTION

- Jake walks east through a passenger car on a train that moves 10 m/s in the same direction. Jake's speed relative to the car is 2 m/s. Jake's speed relative to an observer at rest outside the train is
 - 2 m/s.
 - 5 m/s.
 - 8 m/s.
 - 12 m/s.
- A gazelle travels 2 km in a half hour. The gazelle's average speed is
 - 1/2 km/h.
 - 1 km/h.
 - 2 km/h.
 - 4 km/h.
- Constant speed in a constant direction is
 - constant velocity.
 - constant acceleration.
 - instantaneous speed.
 - average velocity.
- A vehicle undergoes acceleration when it
 - gains speed.
 - decreases speed.
 - changes direction.
 - all of the above
- If a falling object gains 10 m/s each second it falls, its acceleration can be expressed as
 - 10 m/s/s.
 - 10 m/s².
 - $v = gt$.
 - both A and B.
- The slope of a speed-versus-time graph represents
 - distance traveled.
 - velocity.
 - acceleration.
 - air resistance.
- If an object has an acceleration of 0 m/s², then one can be sure that the object is not _____.
 - Moving
 - Changing position
 - Changing velocity
- A rock falls 180 m from a cliff into the ocean. How long is it in free fall?
 - 6 s
 - 10 s
 - 18 s
 - 180 s
- When no air resistance acts on a projectile, its horizontal acceleration is
 - g .
 - at right angles to g .
 - upward, g .
 - zero.
- Without air resistance, the time for a vertically tossed ball to return to where it was thrown is
 - 10 m/s for every second in the air.
 - the same as the time going upward.
 - less than the time going upward.
 - more than the time going upward.
- A fullback is running down the football field in a straight line. He starts at the 0-yard line at 0 seconds. At 1 second, he is on the 10-yard line; at 2 seconds, he is on the 20-yard line; at 3 seconds, he is on the 30-yard line; and at 4 seconds, he is on the 40-yard line. What is the player's acceleration?
- Olympic gold medalist Michael Johnson runs one time around the track - 400 meters - in 38 seconds. What is his displacement?
- If an object is moving eastward and slowing down, then the direction of its velocity vector is _____.
 - eastward
 - westward
 - neither
 - not enough info to tell

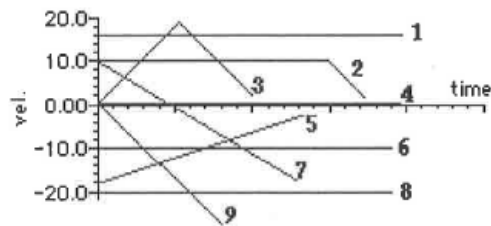
Use the graph to answer the following questions.

14. Describe the motion of the object.

15. Determine the acceleration of the object from the graph.

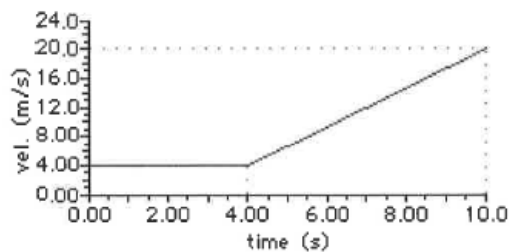


Consider the velocity-time graph at the right for several different objects, each represented by a numbered line.



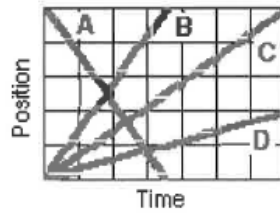
Use the graph to answer the next several questions. For each question, there may be more than one line which applies.

16. Which object(s) is/are moving with a constant velocity during the entire motion?
17. Which object(s) is/are speeding up during the entire motion?
18. Which object(s) is/are slowing down during the entire motion?
19. Which object(s) change(s) direction at anytime during the motion?
20. Which object(s) is/are moving with a positive acceleration at any time during the motion?
21. Which object(s) is/are moving with a negative acceleration at any time during the motion?
22. Consider the velocity-time graph below.



Determine the acceleration (in m/s/s) of the object at 8 seconds.

Consider the four lines on the position-time graph below.



Match each line with one of the following descriptions of a chicken crossing a road. The east side of the road is the origin location. The west side of the road is 5-meters away.

7. Which line represents the chicken casually crossing the road to simply get to the west side?
 - a. Line A
 - b. Line B
 - c. Line C
 - d. Line D

8. Which line represents the chicken that hurriedly crossed the road to get away from the fox?
 - a. Line A
 - b. Line B
 - c. Line C
 - d. Line D

9. Which line represents the chicken who had just crossed the road but now has met a fox and is running back to the original east side?
 - a. Line A
 - b. Line B
 - c. Line C
 - d. Line D

10. Which line represents the chicken that tried to cross the road but because it was too slow got run over by an 18-wheeler before making it across?
 - a. Line A
 - b. Line B
 - c. Line C
 - d. Line D

11. A ball is thrown into the air. The ball rises upward, reaches a peak and falls back downward before being caught at the same height from which it is thrown. Its motion can be approximated as a free falling motion. Which of the following graphs best represents the motion of the ball?

