AP Physics Review Chapter 2 | Name:

1. In a 400-m relay race the anchorman (the person who runs the last 100 m) for team A can run 100 m in 9.8 s. His rival, the anchorman for team B, can cover 100 m in 10.1 s. How many meters ahead must team A runner be when team B runner starts the final leg of the race, in order that the team A runner not lose the race?

2. A cart with an initial velocity of 5.0 m/s experiences a constant acceleration of 2.0 m/s^2.
What is the cart's displacement during the first 6.0 s of its motion?

3. An airplane increases its speed from 100 m/s to 160 m/s, at the average rate of 15 m/s^2.
How much time does it take for the complete increase in speed?

4. A car traveling 60 km/h accelerates at the rate of 2.0 m/s^2. How much time is required for the car to reach a speed of 90 km/h?

5. A bullet moving horizontally with a speed of 500 m/s strikes a sandbag and penetrates a distance of 10.0 cm. What is the average acceleration, in m/s^2, of the bullet?

6. An object starts from rest and undergoes uniform acceleration. During the first second it travels 5.0 m.
How far will it move during the next second?

7. A ball is thrown upward at a velocity of 19.6 m/s.
What is its velocity after 3.00 s?

8. A bullet shot straight up returns to its starting point in 10 s.
What is the initial speed of the bullet?

9. A ball is thrown straight up with a speed of 30 m/s.
What is the maximum height reached by the ball?

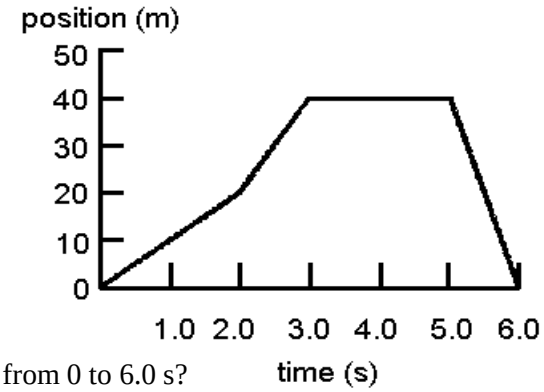
10. Ball A is dropped from the top of a building. One second later, ball B is dropped from the same building. As time progresses, the distance between them

a. increases. b. remains constant.
c. decreases. d. cannot be determined from the information given.

11. A ball is thrown straight up with an initial speed of 30 m/s. What is its speed after 4.2 s?

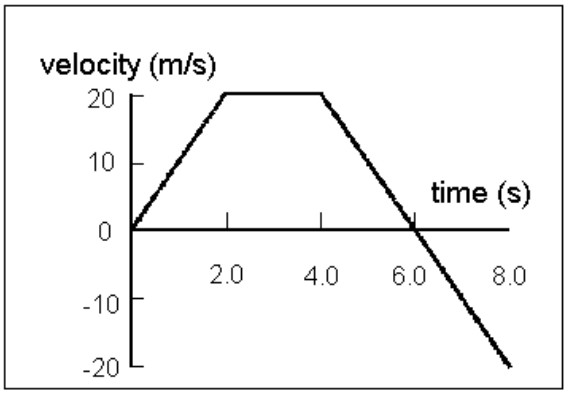
12. In the graph shown, what is the velocity at t = 2.5 s?

13. In the graph shown, what is the velocity at t = 4.0 s?



14. In the graph above, what is the average velocity from 0 to 6.0 s?

15. In the graph below, what is the acceleration at 1.0 s?



16. In the graph above, what is the average velocity from 0 to 8.0 s?

-1250000, -9.8, 0, 0, 3.0, 4.0, 4.2, 7.5, 10.0, 11.2, 15.0, 20.0, 46.0, 49.0, 66.0