Vectors

AP Physics – Mr. Hall

WORKSHEET #3

Name: _____

1. A ball is thrown straight up with a speed of 12.5 m/s. (a) How high does it go and (b) how much time does it take to get there?

2. A Volkswagen runs straight off a cliff. The Volkswagen is traveling at a speed of 34.5 m/s when if leaves the road. If the cliff is 12.5 m high, how far horizontally does the car travel before it smashes into the ground below?

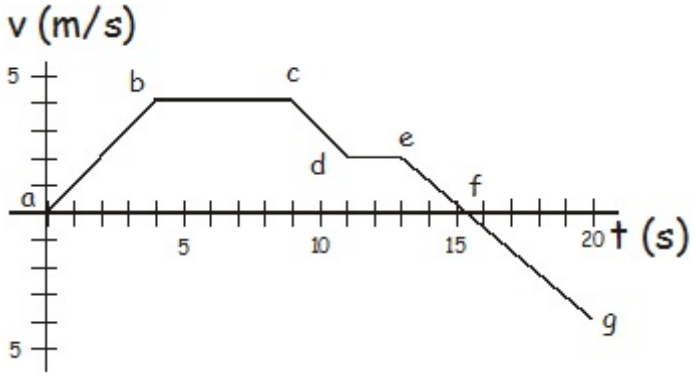
3. A stealth bomber on a training mission drops one of its bombs from a height of 3 500 m during level flight. The bomb travels a horizontal distance of 1.25 km. What was the plane's horizontal speed?

4. An arrow is launched with a velocity of 88.7 m/s at an angle of 33.0° to the horizontal. How far does the arrow travel?

5. A brick is thrown upward from the top of a building at an angle of 25° to the horizontal and with an initial speed of 15 m/s. It strikes the ground below. If the brick is in flight for 3.0 s, how tall is the building?

6. A ball is thrown at an angle of 43° to the horizontal. It travels a distance of 75 m in 2.3 s. (a) What was its original velocity? (b) How high did it go?

7. Observe the distance Vs time graph for the motion of a toy car. From the graph, determine the following: (a) the speed at time t = 2.5 s. (b) The speed at time t = 17 s. (c) parts of the curve when the speed is increasing in magnitude. (d) What will be total displacement at t = 14 s.



8. A truck is out on the highway cruising along. It goes by a marker that says “125 km”. 12 minutes later it travels past a marker that says “ 88 km”. What is the average speed of the truck?

9. The USS Theodore Cleaver fires a projectile at an angle of 25.0 °. The time of flight for the projectile is 48.4 s. What was the horizontal distance of the shot?