

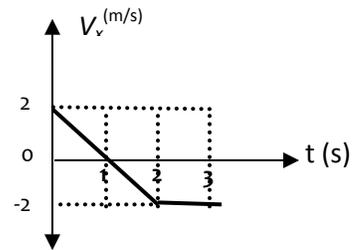
Problem set 1

1. A stone is thrown vertically upward from the top of a building with an initial speed of 15 m/s. If the stone is in flight for 4.0 s, how tall is the building (in m)?

- a. 20 b. 14 c. 10 d. 64 e. 4

2. V_x is the velocity of a particle moving along the x -axis as shown. What is the total displacement of the particle (in m) at $t = 3.0$ s?

- (a) -6 (b) 2 (c) 0
(d) 6 (e) -2



3. An object moves along the x -axis such that its position $x(t) = -5 - 4t + t^2$ where x is in meters and t in seconds. The average speed of the particle (in m/s) between $t = 0$ and $t = 3$ s is:

- a) 4.33 b) 0 c) 5.00 d) 1.66 e) 2.61

4. Which of the following statements is Wrong

- a) Average speed is always greater or equal to magnitude of the average velocity.
b) Displacement of a moving object can be equal to zero at some instant.
c) The acceleration of an object whose speed is constant must be zero.
d) Instantaneous speed is the magnitude of the instantaneous velocity.
e) An object is projected vertically upwards. While in flight, its acceleration is constant regardless of the direction of its velocity.

5. A passenger is sitting with the seat belt buckled in a car moving forward at a constant speed. The car at a certain point in time turned left while the passenger remained fixed in the seat. The net force experienced by the passenger while the car is turning is:

- a) Zero b) not zero and directed to the left c) not zero and directed to the right
d) not zero and directed forward e) not zero and directed backward