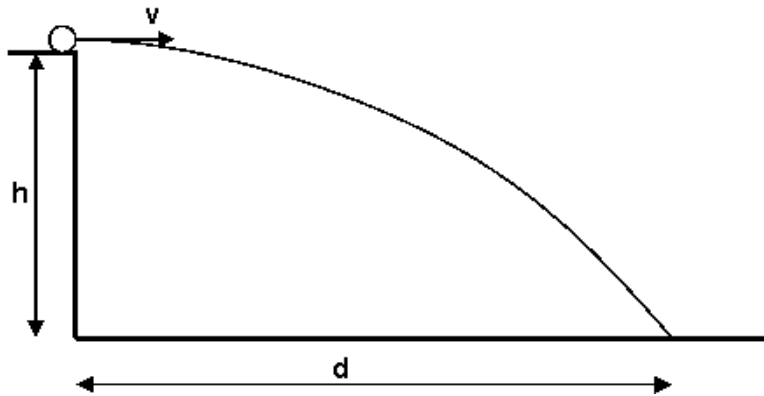


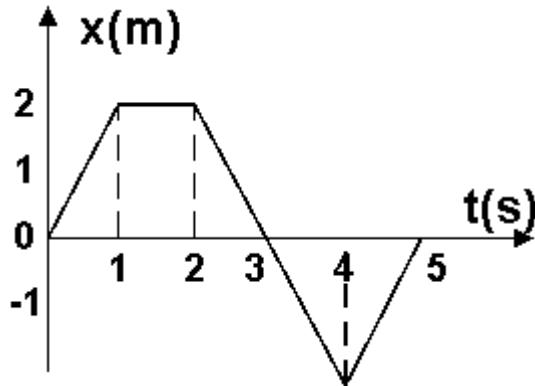
Kinematics

1. A graduation hat is thrown vertically with a speed of 5m/s. How long does it take the hat to reach maximum height?
 - a) $t = .2s$
 - b) $t = .5s$
 - c) $t = .8s$
 - d) $t = 1s$
 - e) $t = 2s$
2. A soccer ball is kicked with an horizontal speed $v = 10m/s$ from the height $h = 20m$, as shown in the figure below. Calculate the time passed from the moment the ball has an horizontal speed until the moment it touches the ground.

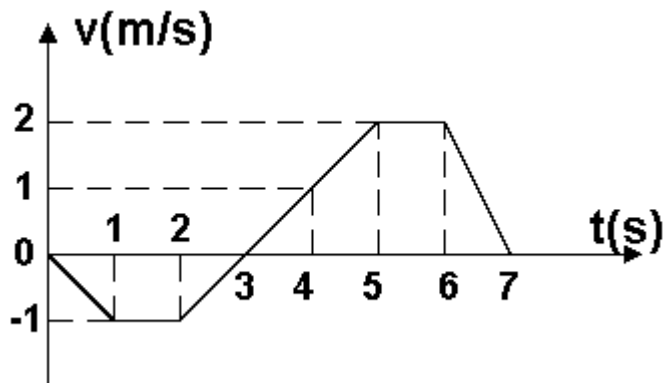


- a) $t = .2s$
 - b) $t = .5s$
 - c) $t = .8s$
 - d) $t = 1s$
 - e) $t = 2s$
3. Calculate distance d from the problem above.
 - a) $d = 10m$
 - b) $d = 15m$
 - c) $d = 20m$
 - d) $d = 25m$
 - e) $d = 30m$

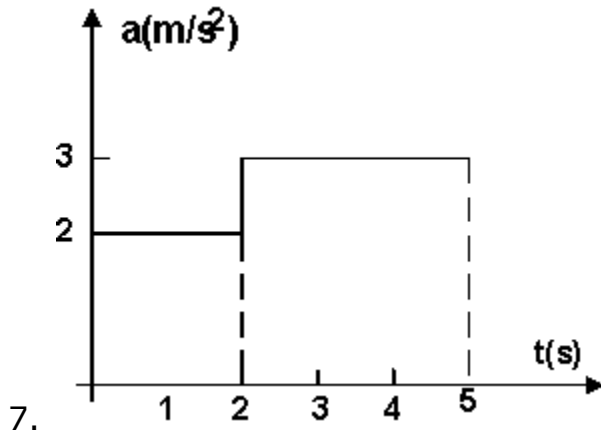
4. The movement of a particle along the axis x is characterized by the graph below. What is the speed of the particle at $t = 3\text{s}$?



- a) $v = 0\text{m/s}$
 b) $v = 1\text{m/s}$
 c) $v = -1\text{m/s}$
 d) $v = 2\text{m/s}$
 e) $v = -2\text{m/s}$
5. A car travels a distance d with an average speed v_1 . The velocity of the car during this trip is v_2 and the maximum instantaneous speed of the trip is v_3 . Which of the following statements must be true?
- a) $v_2 < v_1 \leq v_3$
 b) $v_2 \leq v_1 \leq v_3$
 c) $v_1 \leq v_2 \leq v_3$
 d) $v_3 \leq v_1 \leq v_2$
6. Calculate the displacement between $t = 2\text{s}$ and $t = 5\text{s}$ of an object that moves along an axis and has the speed characterized below.



- a) $d = .5\text{m}$
 b) $d = 1\text{m}$
 c) $d = 1.5\text{m}$
 d) $d = 2\text{m}$
 e) $d = 2.5\text{m}$



The graph above shows the acceleration of a particle. At $t = 0\text{s}$, the speed of the particle is 1m/s . What is the speed of the particle at $t = 4\text{s}$?

- a) 6m/s
- b) 10m/s
- c) 11m/s
- d) 12m/s
- e) 15m/s

Solutions:

Question #1: b

Question #2: e

Question #3: c

Question #4: e

Question #5: b

Question #6: c

Question #7: c