Kinematics 2 : W.S.-24
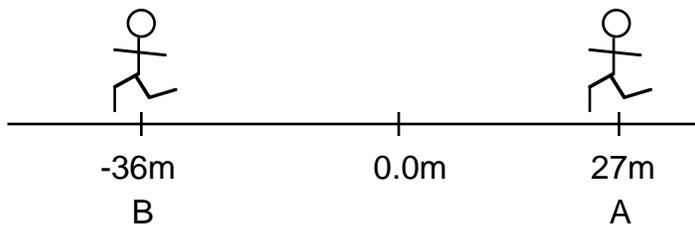
If the velocity of an object is constant, (a = 0.0 m/s²), then we have the equations:

$$d_f - d_i = v \cdot T$$

$$V_{average} = d_{total} / T$$

1) A boy runs left at a constant velocity for 18 seconds.

-36m	0.0m	27m
B		A

a) His displacement at A is _____ m.

b) His displacement at B is _____ m.

c) His velocity is _____ m/s.

d) His speed is _____ m/s.

e) If he keeps running left at a constant speed, what will his displacement be 6.0 s after he reaches the point B? _____ m.

2) A car moves with a velocity of 12 m/s for 30.s. It then moves with a velocity of 15 m/s for 18. s.

a) The change in displacement for the first 30. s is _____ m.

b) The change in displacement for the next 18. s is _____ m.

c) The average velocity is _____ m/s.

If the acceleration of an object is constant, and V_i = 0.0 m/s, then we have the equations below:

$$v_f = v_i + a \cdot T$$

$$d = \frac{1}{2} \cdot a \cdot T^2$$

3) A ball is dropped from a 120 m high building.

    a) The velocity at t = 3.7 s is _____ m/s.

    b) Find the change in displacement in the first 3.7 s. _____ m.

    c) Find the time that it takes for the ball to hit the ground. _____ s.

4) A car accelerates to the right.

V = 0.0 m/s   V = 18 m/s

t = 0.0 s   t = 5.0 s

    a) The acceleration is _____ m/s^2.

    b) The distance the car travels in the first 5.0 s is _____ m.

Answers: 1)a) 27, b) -36, c) -3.5, d) 3.5, e) -57, 2)a) 360, b) 270, c) 13, 3)a) -36, b) -67, c) 4.9, 4)a) 3.6, b) 45.