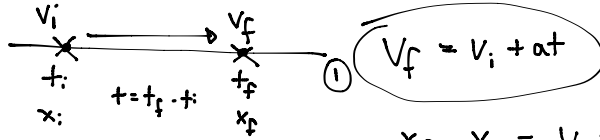


Kinematics

$a = \text{constant}$

$$a = \frac{\Delta V}{\Delta t} \rightarrow a = \frac{V_f - V_i}{t}$$

$$V = \frac{\Delta x}{\Delta t}$$

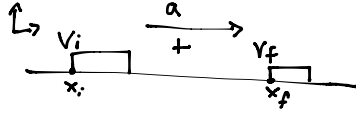


$$x_f - x_i = v_i t + \frac{1}{2} a t^2$$

$$\textcircled{2} \quad x_f = x_i + v_i t + \frac{1}{2} a t^2$$

$$\textcircled{3} \quad v_f^2 = v_i^2 + 2a(x_f - x_i)$$

car: $x_i = 0\text{m}$ $v_i = 0\text{m/s}$
 $x_f = 20\text{m}$ $a = 2.0\text{m/s}^2$



Find t and v_f

$$v_f^2 = (0)^2 + 2(2)(20 - 0)$$

$$\sqrt{v_f^2} = \sqrt{80}$$

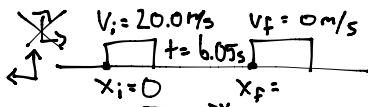
$$= 4\sqrt{5} \text{ m/s}$$

$$v_f = v_i + at$$

$$4\sqrt{5} = (0) + (2)t$$

$$4\sqrt{5} = 2t$$

$$t = 2\sqrt{5} \text{ seconds}$$



Find a and x_f

$$v_f = v_i + at \quad 0 = 20 + a(6.05)$$

$$0 = 20 + a(6.05) \quad a = 3.31 \text{ m/s}^2$$

$$-20 = 6.05a$$

$$a = -3.31 \text{ m/s}^2$$

both correct
choose frame of ref.

$$x_f = x_i + v_i t + \frac{1}{2} a t^2$$

$$= 0 + 20(6.05) + \frac{1}{2}(-3.31)(6.05)^2$$