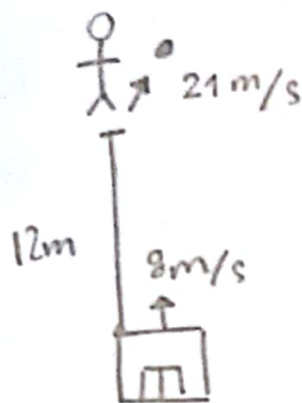


①



Datos

$$V_{0a} = 8 \text{ m/s}$$

$$V_{0p} = 21 \text{ m/s}$$

$$Y_{0a} = -12 \text{ m}$$

$$V_{0p} = 0 \text{ m}$$

a)  $\Delta t, t_a = t_p$

b)  $\Delta y, y_{fa} = y_{fp}$

a)  $y_{fa} = y_{fp}$

$$y_{0a} + \bar{v}_a t = y_{0p} + v_y t - \frac{1}{2} g t^2$$

$$-12 + 8 t = 0 + 21 t - \frac{9.81}{2} t^2$$

$$-12 + 8 t = 21 t - \frac{981}{200} t^2$$

$$-2400 + 1600 t = 4205 - 981 t^2$$

$$-2400 - 2600 x + 981 x^2 = 0$$

$$x_2, x_1 = \frac{2600 \pm \sqrt{(-2600)^2 - 4 \cdot 981 \cdot -2400}}{2 \cdot 981} = 3,37 \mid -0,72$$

R//  $t = 3.37 \text{ s}$

b) Ascensor

$$y_{fa} = -12 + 8(3.37) = 14.96 \text{ m} \approx 15 \text{ m}$$

pelota

$$y_{fp} = 0 + 21(3.37) - \frac{9.81}{2} \left( \frac{3.37}{1} \right)^2 = 15.06 \approx 15 \text{ m}$$

R// Se encontraron en los  
15m respecto al punto  
de inicio de la pelota.

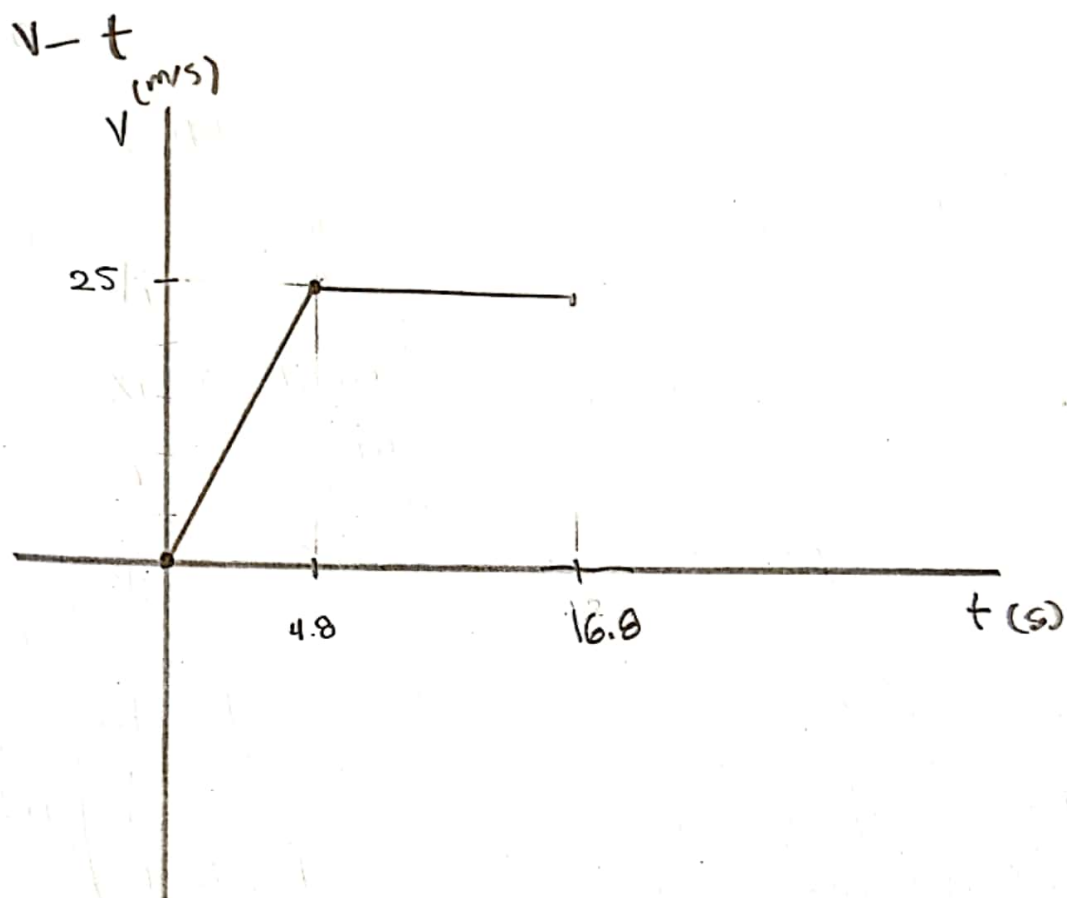
②

Datos

$$\text{Tramo 1} \left\{ \begin{array}{l} v_i = 0 \text{ m/s} \\ x_i = -18 \text{ m} \\ a = 5.2 \text{ m/s}^2 \\ v_f = 25 \text{ m/s} \end{array} \right.$$

$$\text{Tramo 2} \left\{ \begin{array}{l} \Delta t = 12 \text{ s} \\ v = 25 \text{ m/s} \\ a = 0 \end{array} \right.$$

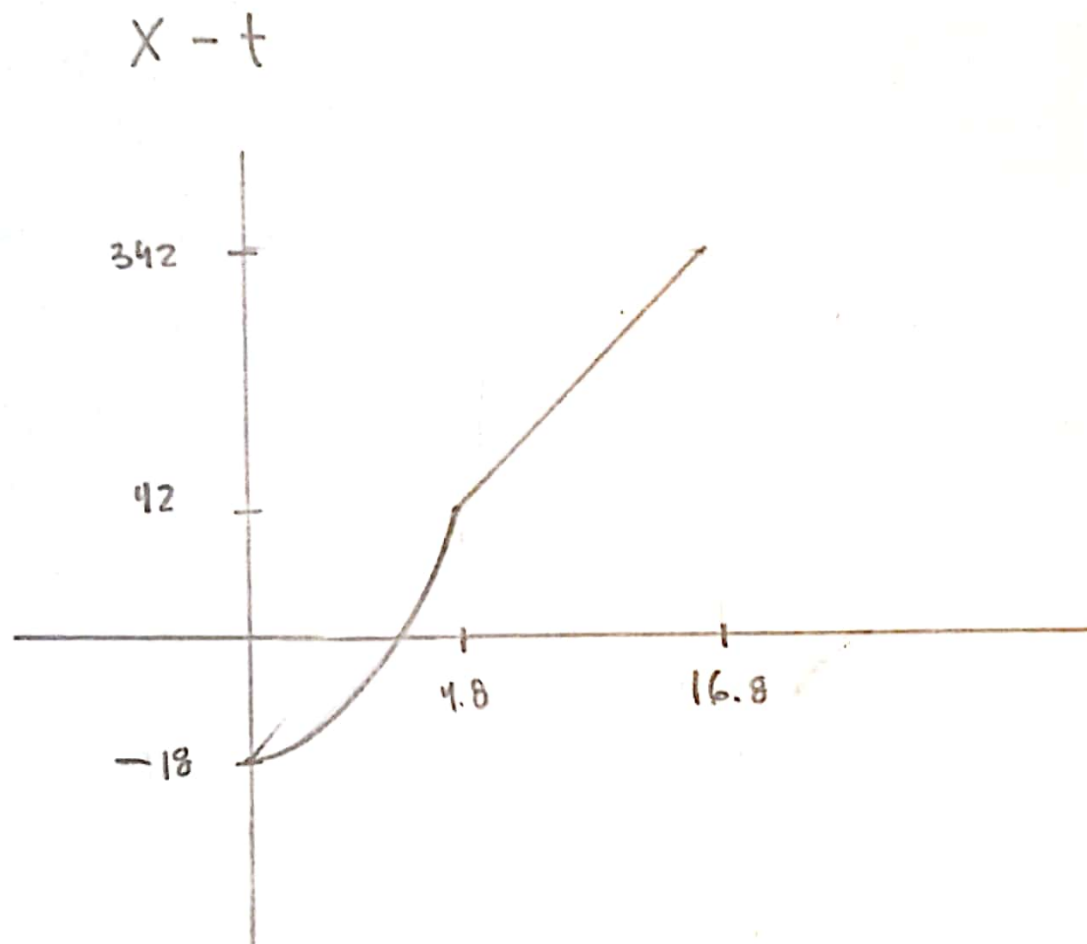
a)



$$V_f = V_i + a t$$

$$25 \text{ m/s} = 0 \text{ m/s} + 5.2 t$$

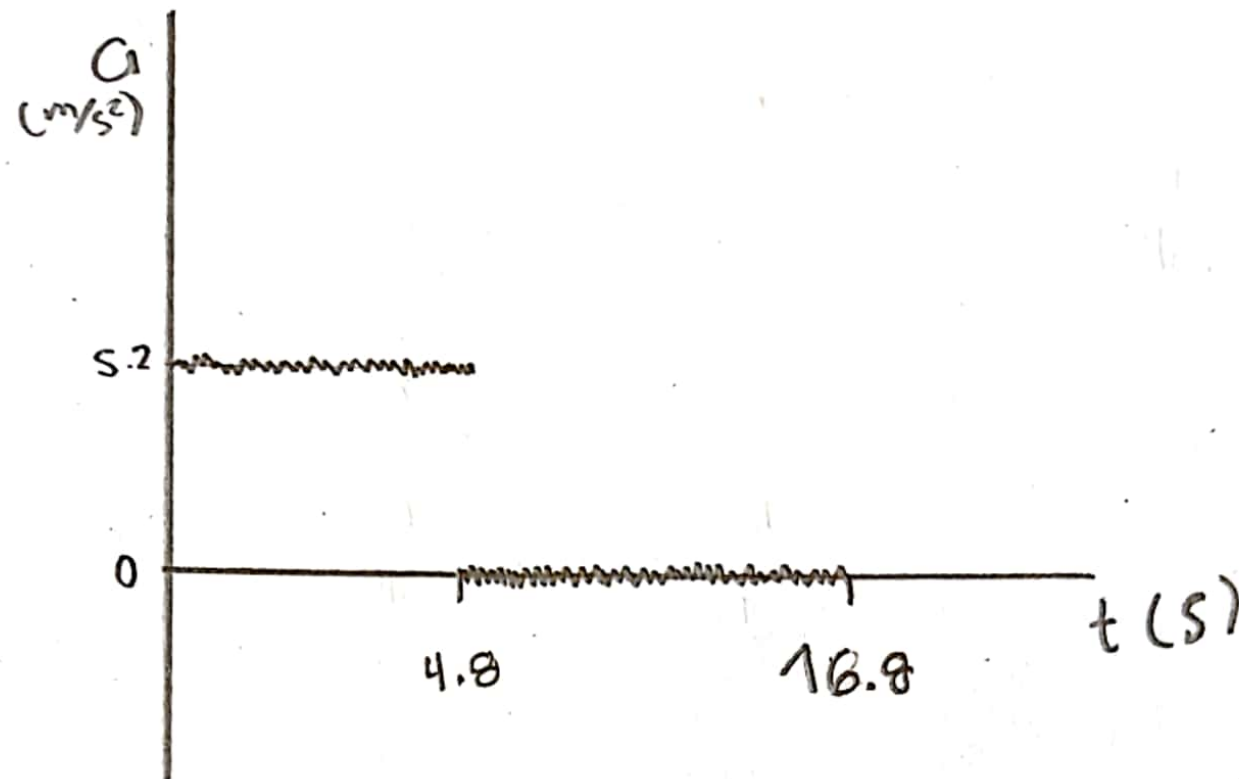
$$t = \frac{25}{5.2} = 4.8 \text{ s}$$



$$\text{tramo}_1 \left\{ x = x_0 + v_0 t + \frac{1}{2} a t^2 = -18 + 0 + \frac{1}{2} 5.2 (4.8)^2 = 42 \text{ m} \right.$$

$$\text{tramo}_2 \left\{ x = vt = 25(12) = 300 \text{ m} \right.$$

a - t



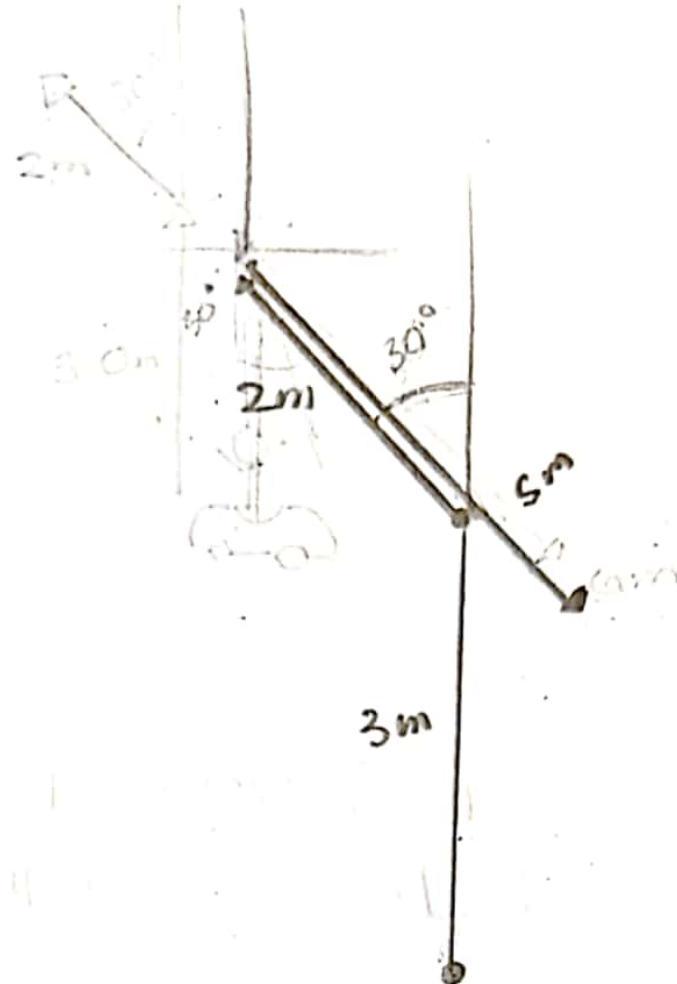
$$(0 \leq t \leq 4.8) \{ a = 5.2 \}$$

$$(4.8 \leq t \leq 16.8) \{ a = 0 \}$$

b) La coordenada final  $x$  de la partícula es  $342\text{m}$  //

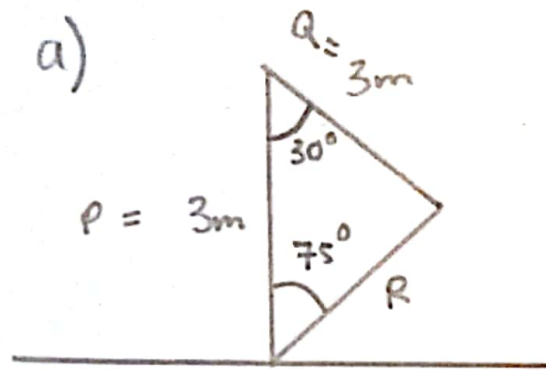
c) El tiempo en el que alcanzó  $25\text{m/s}$  fue de  $4.8\text{s}$  //

3



b) La distancia recorrida fue de 10m //





$$R^2 = P^2 + Q^2 - 2PQ \cos(r)$$

$$R = \sqrt{3^2 + 3^2 - 2(3)(3) \cos(30^\circ)}$$

$$R = 1.55 \text{ m}$$

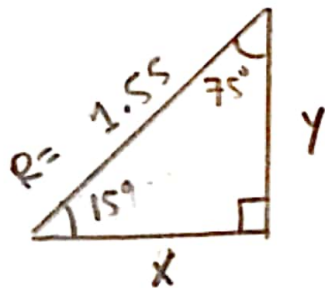
$$\frac{\sin r}{R} = \frac{\sin q}{Q}$$

$$r = \sin^{-1} \left( \frac{\sin q}{Q} \cdot R \right)$$

$$r = \sin^{-1} \left( \frac{\sin 30}{3} \cdot 1.55 \right)$$

$$r = 75^\circ$$

$$90^\circ - 75^\circ = 15^\circ$$



$$\sin 15^\circ = \frac{Y}{1.55} \rightarrow 1.55 \sin 15^\circ \rightarrow Y = 0.4$$

$$\cos 15^\circ = \frac{X}{1.55} \rightarrow 1.55 \cos 15^\circ \rightarrow X = 1.49$$

$$\vec{R} = 1.49\mathbf{i} + 0.4\mathbf{j} \text{ (cm)}$$

R// El desplazamiento fue  $1.55$  a  $15^\circ$  del punto inicial  $\vec{R} = 1.49\mathbf{i} + 0.4\mathbf{j} \text{ (cm)}$  //