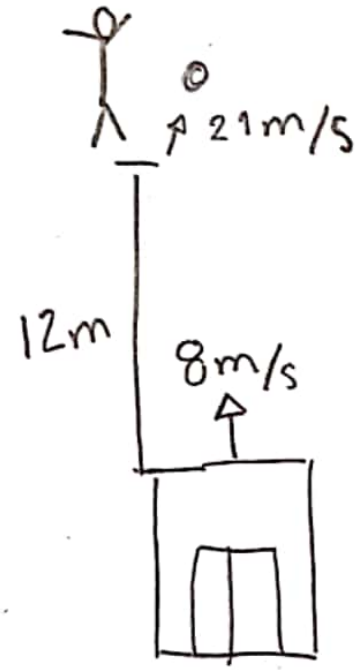
Samuel Chamali, 21881

X = Y

① 

Datos

$V_{ia} = 8\ m/s$ $\quad V_{ip} = 21\ m/s$

$Y_{ia} = 12$ $\quad Y_{ip} = 0$

a) Δt, $t_a = t_p$

b) ΔY, $Y_{fa} = Y_{fp}$

a) $y = y_0 + v_{y0}t - \frac{1}{2}gt^2$

$$y_{fa} = y_{fp}$$

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

$$-12 + 8t = 21t$$

$$-12 = 13t$$

$$|-0.92| = t$$

$$t = -0.92\,s$$

b) $y = y_0 + v_{y0}t - \frac{1}{2}gt^2$

Ascensor

$$y_{fa} = -12 + 8(-0.92) - \frac{9.81}{2}(0.92)^2 = -23.51 \simeq -23m$$

$$-12 + 7.36 - 4.15$$

Pelota

$$y_{fp} = 0 + 21(-0.92) - \frac{9.81}{2}(-0.92)^2 = -23.97 \simeq -23m$$

$$+19.32 - 4.15$$

②

Datos

tramo 1

$V_i = 0\ m/s$

$X_i = -18\ m$

$a = 5.2\ m/s^2$

$V_f = 25\ m/s$

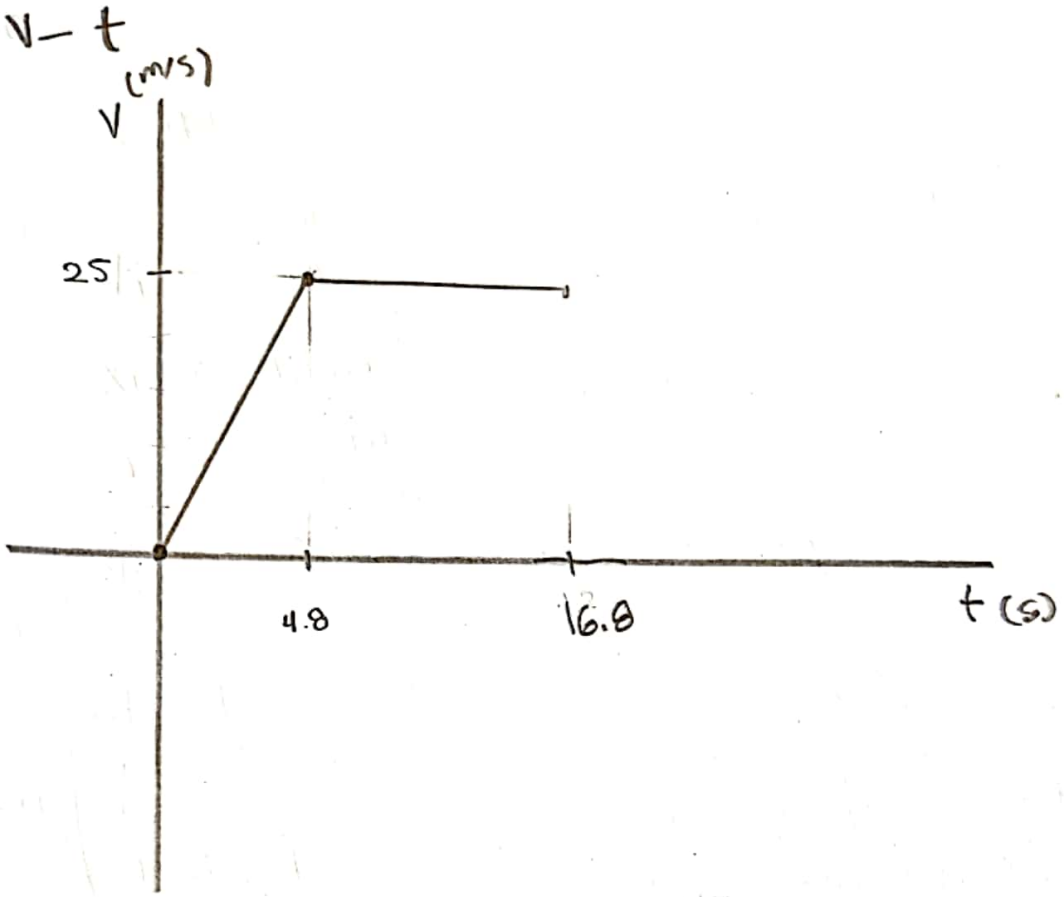
tramo 2

$\Delta t = 12\ s$

$V = 25\ m/s$

$a = 0$

a)

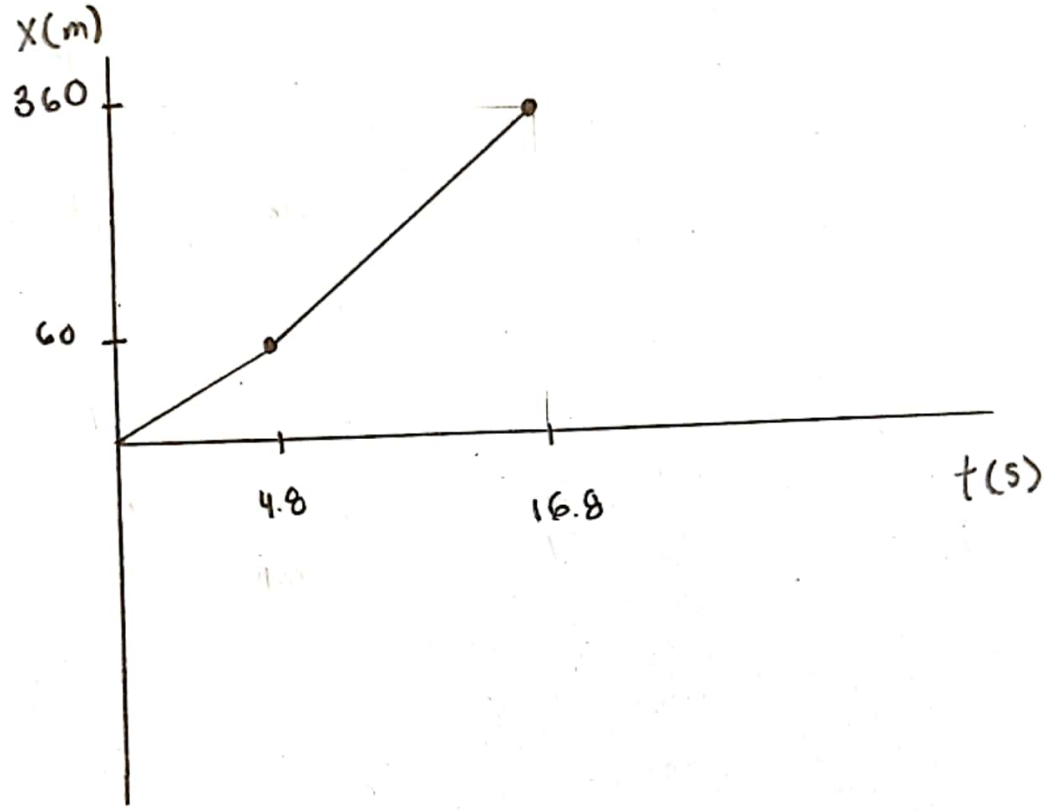


$$V_f = V_i + a\,t$$

$$25\,m/s = 0\,m/s + 5.2\,t$$

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

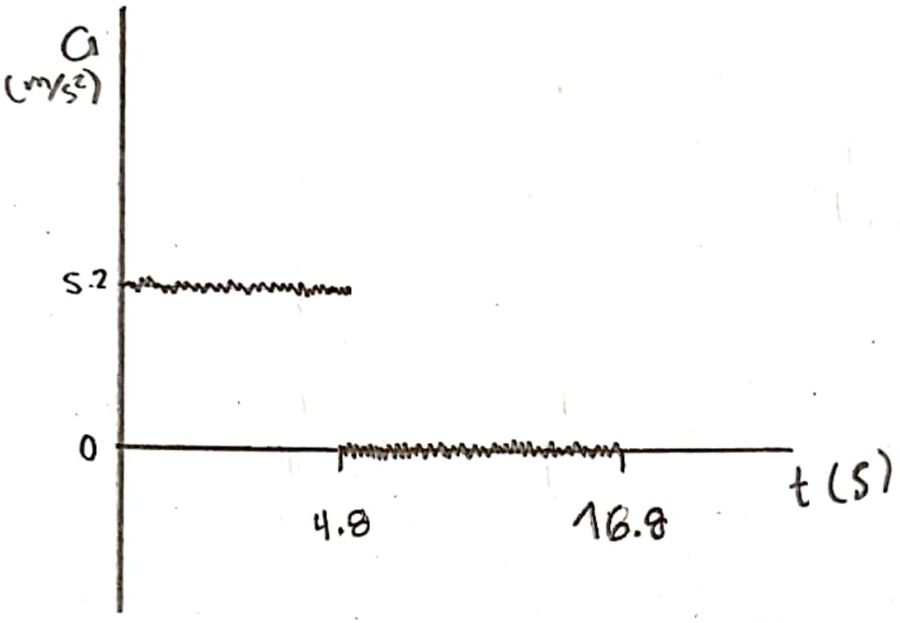
X - t



$t_{\text{tramo 1}}$ { $X = X_0 + V_0(t) + \frac{1}{2} a t^2 = 0 + 0 + \frac{1}{2} 5.2 (4.8)^2 = 59.9 \approx 60\,m$

$t_{\text{tramo 2}}$ { $x = vt = 25\,(12) = 300\,m$

a - t



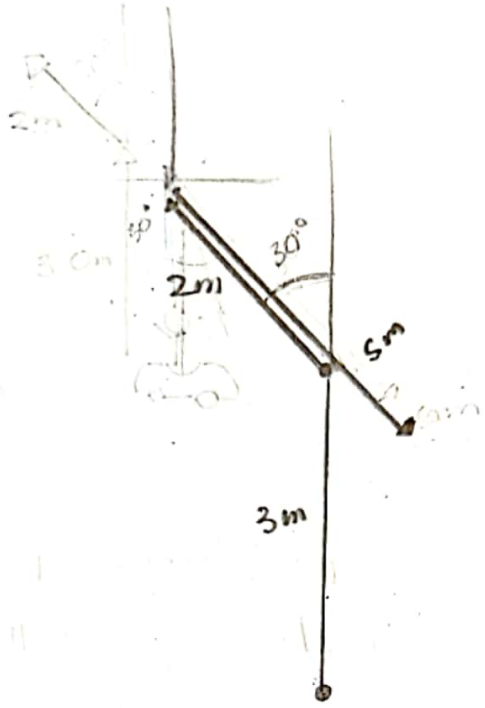
$(0 \leq t \leq 4.8) \{ a = 5.2 \}$

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

b) La coordenada final x de la particula es 360 m //

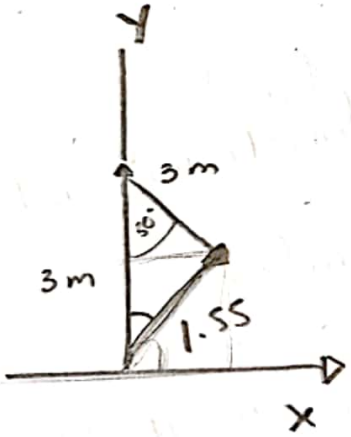
c) El tiempo en el que alcanzo 25 m/s fue de 4.8 s //

(3)



b) La distancia recorrida fue de 10m //

a)



a) El desplazamiento fue $\vec{1.55}$ a 75° del punto inicial.

$R^2 = P^2 + Q^2 - 2PQ\cos(30)$

$R^2 = 3^2 + 3^2 - 2(3)(3)\cos(30°)$

$18 - 18\cos(30°)$

$\sqrt{R^2} = \sqrt{2.41}$

$R = 1.55$ //

$\frac{\text{sen}\,r}{R} = \frac{\text{sen}\,B}{b}$

$\text{sen}\,R = \frac{\text{sen}\,B}{b} \cdot R$

$r = \text{sen}^{-1}\left(\frac{\text{sen}\,B}{b} \cdot R\right)$

$r = 75°$