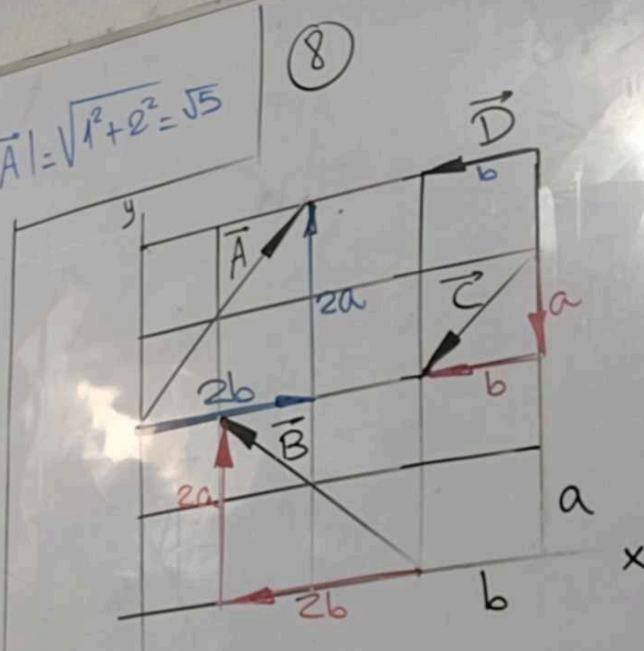


$$\begin{aligned}
 & \vec{A} = (1; 2) \\
 & \vec{B} = (-3; 5) \\
 & \vec{C} = (2; -7) \\
 & \vec{R} = (0; 0)
 \end{aligned}
 \rightarrow |\vec{A}| = \sqrt{1^2 + 2^2} = \sqrt{5}$$

$$\begin{aligned}
 \hat{u}_A &= \frac{\vec{A}}{|\vec{A}|} = \frac{(1; 2)}{\sqrt{5}} \\
 &= \frac{1\hat{i} + 2\hat{j}}{\sqrt{5}}
 \end{aligned}$$



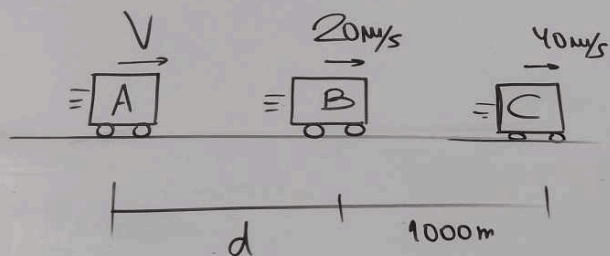
$$\begin{aligned}
 & \vec{A} = (2b; 2a) \\
 & \vec{B} = (-2b; 2a) \\
 & \vec{C} = (-b; -a) \\
 & \vec{D} = (-b; 0)
 \end{aligned}$$

$$\vec{R} = (-2b; 3a)$$

$$\begin{aligned}
 \vec{R} &= -2b\hat{i} + 3a\hat{j} \\
 \vec{F} &= +2b\hat{i} - 3a\hat{j}
 \end{aligned}$$

TOSCANE

(10)



$$1) \text{ A, B: } T_{\text{ALCANCE}} = \frac{d}{V_1 - V_2}$$

$$25 = \frac{d}{V - 20}$$

$$\boxed{25V - 500 = d}$$

$$2) \text{ A, C: } T_{\text{ALCANCE}} = \frac{d}{V_1 - V_2}$$

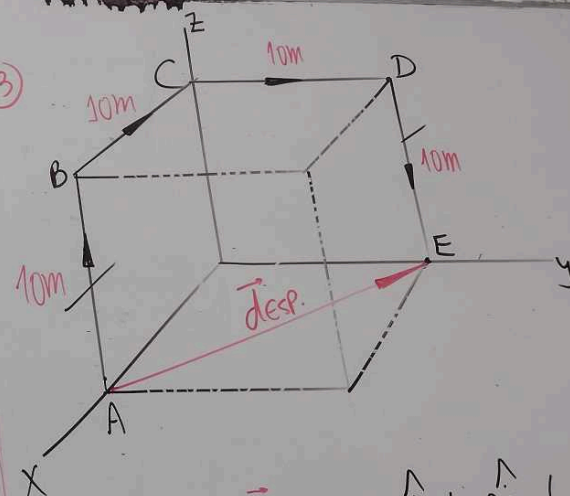
$$75 = \frac{d + 1000}{V - 40}$$

$$75V - 3000 = 25V - 500 + 1000$$

$$50V = 3500$$

$$V = 70 \frac{\text{m}}{\text{s}}$$

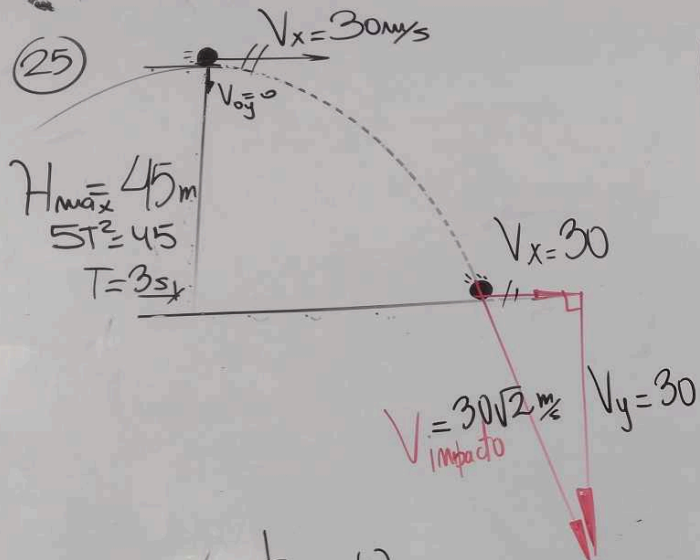
(13)



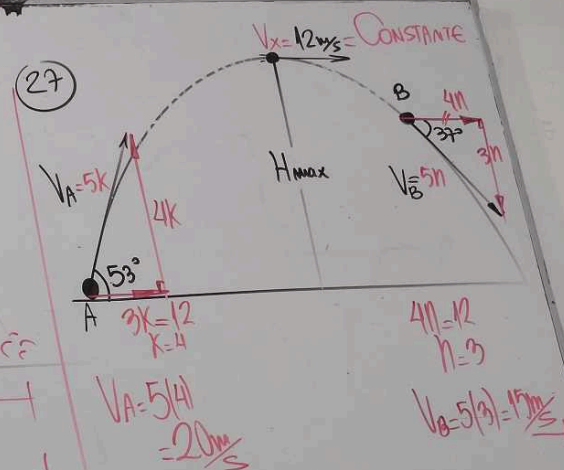
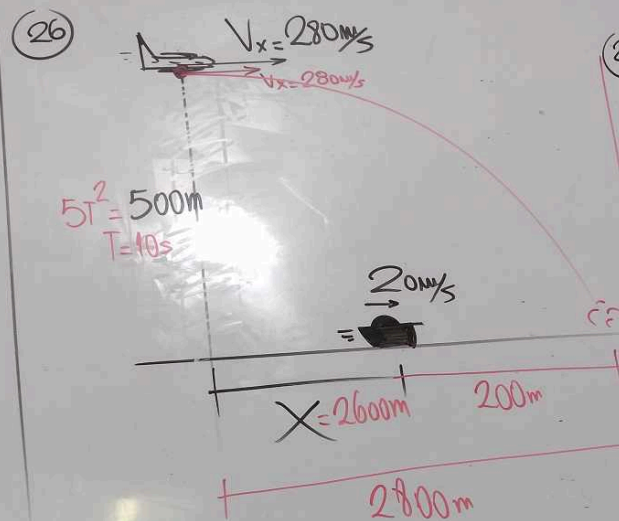
$$1) \vec{V}_{\text{media}} = \frac{\vec{\text{desp.}}}{t_{\text{total}}} = \frac{-10\hat{x} + 10\hat{y}}{10} = (-\hat{x} + \hat{y}) \frac{\text{m}}{\text{s}}$$

$$2) R_m = \frac{e}{t_{\text{total}}} = \frac{40 \text{ m}}{10 \text{ s}} = 4 \frac{\text{m}}{\text{s}}$$

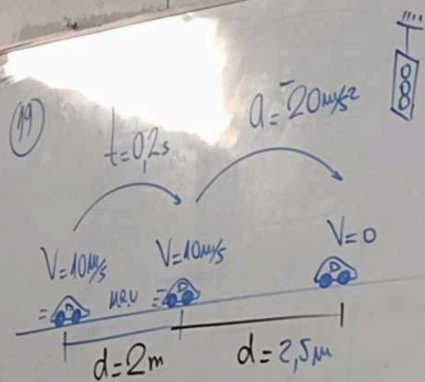
TOSCANE



$$V_{Fy} = V_{0y} + gt = 10(3) = 30$$







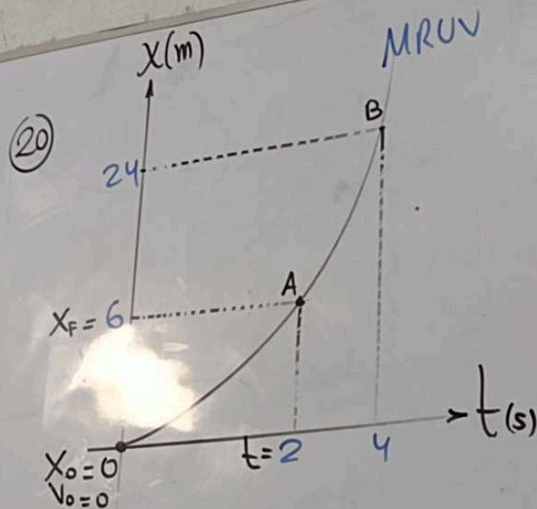
$$V_F^2 = V_0^2 - 2a \cdot d$$

$$0 = 10^2 - 2(20)(d)$$

$$40d = 100$$

$$d = 2.5 \text{ m}$$

Rpta:  $4.5 \text{ m}$



$$d = V_0 \cdot t + \frac{1}{2} a t^2$$

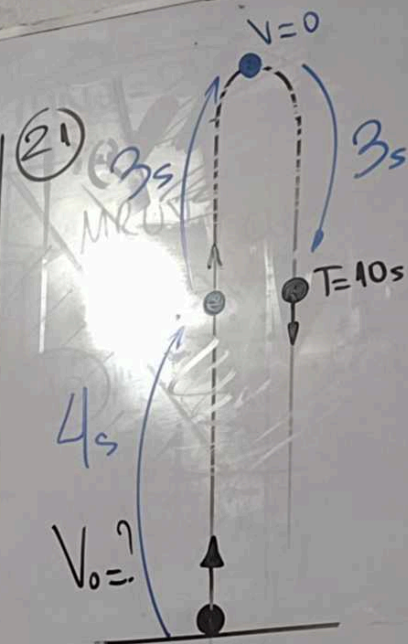
$\underbrace{X_F - X_0}_{10}$

APRENDER:

$$X_F = X_0 + V_0 \cdot t + \frac{1}{2} a t^2$$

$$6 = \frac{1}{2} a (2)^2$$

$$a = 3 \text{ m/s}^2$$



SUBIDA:

$$V_F = V_0 - g \cdot t$$

$$0 = V_0 - 10(7)$$

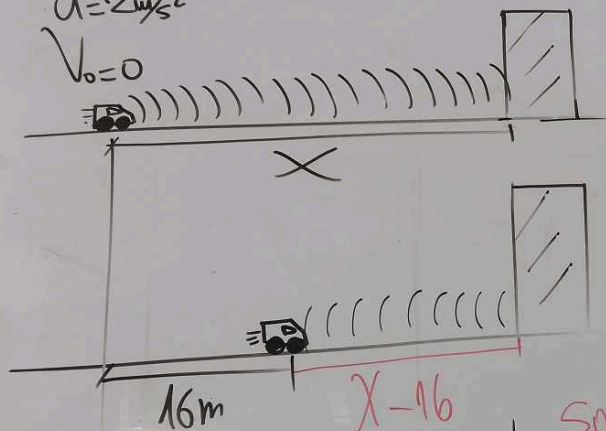
$$V_0 = 70 \text{ m/s}$$

TOSCANS

(17)

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

$$V_0 = 0$$



AUTO:  $d = V_0 t + \frac{1}{2} a t^2$

$$16 = \frac{1}{2} (2) t^2$$

$$t = 4 \text{ s}$$

SONIDO:

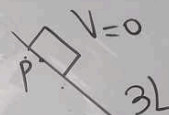
$$d = v \cdot t$$

$$2X - 16 = 340(4)$$

$$2X = 1376$$

$$X = 688 \text{ m}$$

(18)



2L



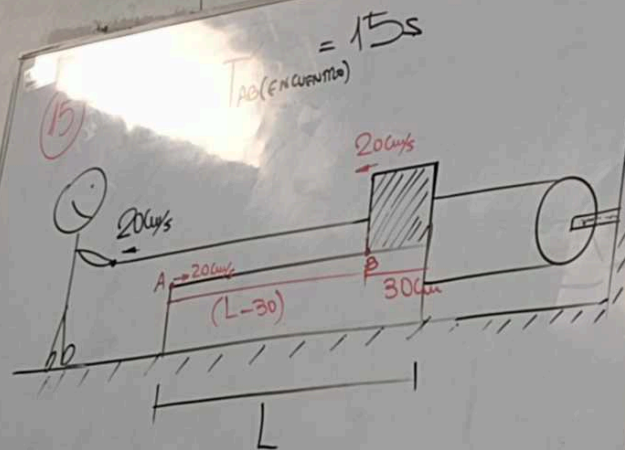
1) AP:  $V_F^2 = V_0^2 - 2ad$   
 $0 = 5^2 - 2a(5L)$

$$10aL = 25$$

$$aL = 2.5$$

2) AM:  $V_F^2 = V_0^2 - 2ad$   
 $V_M^2 = 5^2 - 2a(2L)$   
 $V_M^2 = 25 - 4(2.5)$   
 $V_M = \sqrt{15} \text{ m/s}$

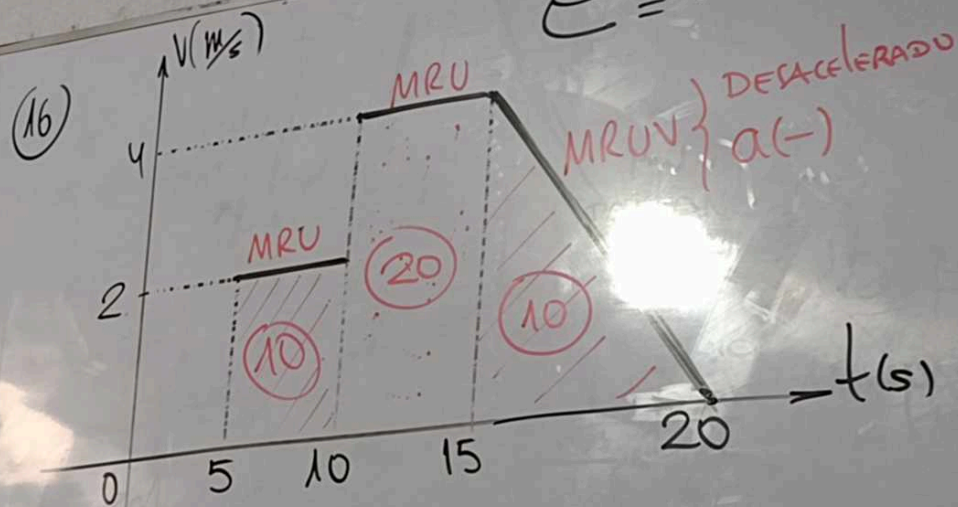




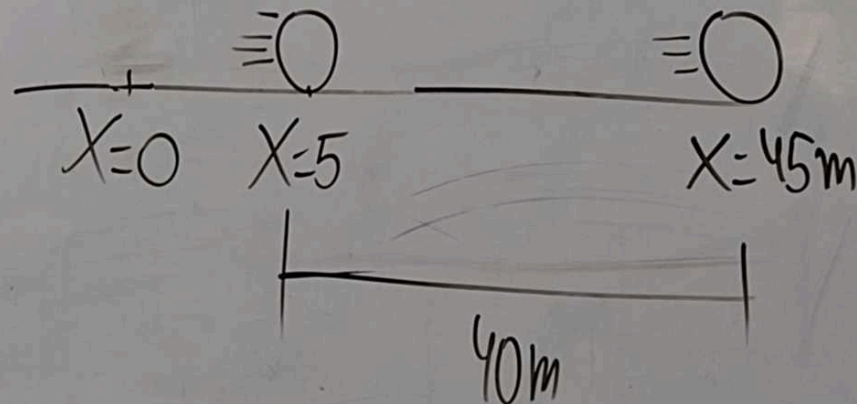
A, B:  $T_{\text{ENCUENTRO}} = \frac{d}{v_1 + v_2}$

$$15 = \frac{L - 30}{40}$$

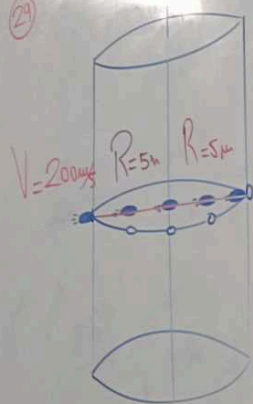
$$L = 630 \text{ m} = 6.3 \text{ km}$$



$$e = 40 \text{ m}$$



(29)



BAA:  $d = vt$   
 $10 = 200t$

$t = \frac{1}{20} s$

 $\omega = ?$ 

Cilindro:

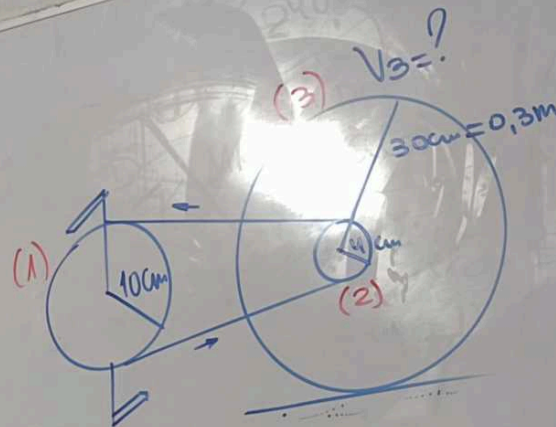
$$\theta = 180^\circ = \pi \text{ rad}$$

$$\omega = \frac{\theta}{t} = \frac{\pi \text{ rad}}{\left(\frac{1}{20}\right)}$$

$$\omega = 20\pi \frac{\text{rad}}{s} \times \left(\frac{1 \text{ rev}}{2\pi \text{ rad}}\right) \times \left(\frac{60 s}{1 \text{ min}}\right)$$

$$\omega = 600 \frac{\text{rev}}{\text{min}} = 600 \text{ RPM}$$

(30)



1)  $\omega_1 = 80 \frac{\text{rev}}{\text{min}}$

2) (1) y (2)

$$V_1 = V_2$$

$$\omega_1 R_1 = \omega_2 R_2$$

$$80(10) = \omega_2(4)$$

$$\omega_2 = 200 \frac{\text{rev}}{\text{min}} = \omega_3$$

$$200 \left( \frac{2\pi \text{ rad}}{60 s} \right) = \omega_3$$

3)  $V_3 = \omega_3 R_3$

$$V_3 = \left( \frac{20\pi}{3} \right) \left( \frac{3}{10} \right)$$

$$V_3 = 2\pi \text{ m/s}$$

$$\omega_3 = \frac{20}{3} \pi \text{ rad/s}$$

(25)

$H_{\text{max}} =$   
 $5T^2$   
 $T$