

Prueba Física 4Diego Lynch
2C.

$$1) m = 5 \text{ [kg]} \quad E_c = \frac{1}{2} m v^2$$

$$v = 8 \text{ [m/s]}$$

$$d = 3 \text{ [m]} \quad \textcircled{A} E_c = \frac{1}{2} 5 \cdot 8^2 \Rightarrow E_c = 160 \text{ [J]}$$

$$\theta = 30^\circ$$

$$E_p = mgh \Rightarrow 5 \cdot 10 \cdot 3 \sin 30 + 160$$

$$= 75 \text{ [J]} + 160 \text{ [J]}$$

$$160 + 75 = 235 \text{ [J]}$$

$$f_{roce} \cdot d \cdot \cos$$

$$\mu m g \cdot d \cdot \cos \theta$$

$$85 = \mu \cdot 5 \cdot 10 \cdot 3 \cdot \cos 30$$

$$85 \text{ [J]} = 129,9 \mu$$

$$\frac{85}{129,9} = \mu$$

$$0,654 = \mu$$

$$0,654 = \mu //$$

2)

$$n_1 = n_2$$

$$n_2 = n_1$$

$$v_1 = 8 \text{ [m/s]}$$

$$v_2 = 20 \text{ [m/s]}$$



$$8 = \frac{n}{2} 20 \cdot \cos 37 + \frac{n}{2} \cdot V \cos \theta$$

$$8 = 10 \cos 37 + \frac{V}{2} \cos \theta \quad / \cdot 2$$

$$\rightarrow 2(8 - 10 \cos 37) = V \cos \theta$$

$$0,0273 = V \cos \theta$$

$$\rightarrow 20 \sin 37 = V \sin \theta$$

$$12,04 = V \sin \theta$$

$$\frac{12,04}{0,0273} = \frac{V \sin \theta}{V \cos \theta}$$

$$\theta = 89,87$$

$$V = \frac{12,04}{\sin 89,87} = 12,04 \text{ [m/s]}$$

$$3) \text{ Distancia} = 314 \text{ [m]}$$

$$t_{\text{tiempo}} = 30 \text{ [s]}$$

$$r_1 = 10 \text{ [cm]}, r_2 = 4 \text{ [cm]}, r_3 = 40 \text{ [cm]}$$

$$\begin{aligned} \text{Perímetro} &= 2\pi R \\ &2\pi R_B \\ &2\pi \cdot 40 \\ &80\pi \text{ [cm]} \\ &0,8\pi \text{ [m]} \end{aligned}$$

$$\begin{aligned} a) \quad 314 \text{ [m]} &= 0,8\pi \\ &\approx 125 \text{ vueltas} \end{aligned}$$

$$b) \quad \omega = \frac{2\pi}{T}$$

$$V = \frac{314}{30} \text{ [m/s]} \quad V = \omega \cdot R$$

$$\frac{314}{30}$$

$$40$$

$$\omega = 0,26 \left[\frac{\text{rad}}{\text{seg}} \right]$$

$$c) \quad R_2 \Rightarrow \omega = 0,26 \left[\frac{\text{rad}}{\text{seg}} \right]$$

$$\omega_1 \cdot R_1 = \omega_2 \cdot R_2$$

$$\omega_1 \cdot 10 = 0,26 \cdot 4$$

$$\omega_1 = \frac{0,26 \cdot 4}{10}$$

$$\omega_1 = 0,104 \left[\frac{\text{rad}}{\text{seg}} \right]$$