

GUÍA DE APRENDIZAJE

Actividades

1. Haga girar el disco, primero de manera suave y luego de manera rápida.
2. Luego tome el tiempo en que realiza 5 giros en ambas velocidades y registre los valores en la tabla.
3. Realice los cálculos necesarios para llenar la tabla.

Movimiento	NO. Vueltas	r(m)	t(s)	T(s)	f(Hz)	ω (rad/s)	V(m/s)
Lento	5	0.058	10.74	2.15	0.47	0.56	0.034
Rápido	5	0.058	5.31	1.06	0.94	1.18	0.069

$$58\text{mm} \rightarrow 0.058\text{m}$$

$$T = \frac{10.74\text{s}}{5} = 2.15\text{s}$$

$$T = \frac{5.31\text{s}}{5} = 1.06\text{s}$$

$$f = \frac{5}{10.74\text{s}} = 0.47\text{Hz}$$

$$f = \frac{5}{5.31\text{s}} = 0.94\text{Hz}$$

$$\omega = \frac{2\pi\text{rad}}{10.74\text{s}} = 0.56\frac{\text{rad}}{\text{s}}$$

$$\omega = \frac{2\pi\text{rad}}{5.31\text{s}} = 1.18\frac{\text{rad}}{\text{s}}$$

$$V = \frac{(2\pi)(0.058\text{m})}{10.74\text{s}} = 0.034\frac{\text{m}}{\text{s}}$$

$$V = \frac{(2\pi)(0.058\text{m})}{5.31\text{s}} = 0.069\frac{\text{m}}{\text{s}}$$

4. Toma una masa atada a una cuerda.

vueltas	r(m)	t(s)	f(Hz)	v(m/s)	a _c (m/s ²)	m(kg)	F _c (N)
10	0.50	4.42	2.26	0.71	0.16	0.008	0.00128
15	0.50	6.70	2.23	0.47	0.11	0.008	0.088

$$f = \frac{10}{4.425} = 2.26 \text{ Hz} \quad f = \frac{15}{6.705} = 2.23 \text{ Hz}$$

$$v = \frac{(2\pi)(0.50\text{m})}{4.425} = 0.71 \frac{\text{m}}{\text{s}} \quad v = \frac{(2\pi)(0.50\text{m})}{6.705} = 0.47 \frac{\text{m}}{\text{s}}$$

$$a_c = \frac{0.71 \frac{\text{m}}{\text{s}}}{4.425} = 0.16 \frac{\text{m}}{\text{s}^2} \quad a_c = \frac{0.47 \frac{\text{m}}{\text{s}}}{6.705} = 0.11 \frac{\text{m}}{\text{s}^2}$$

$$F_c = (0.008\text{kg}) (0.16 \frac{\text{m}}{\text{s}^2}) = 0.00128 \text{ N} \quad F_c = (0.008\text{kg}) (0.11 \frac{\text{m}}{\text{s}^2}) = 0.088 \text{ N}$$





