

OPCIÓN B PREGUNTA 2º

(2B) MAS.

$$V_{\max} = 40 \text{ cm/s} = 0.4 \text{ m/s}$$

(a)  $T = 2.5 \text{ s} \rightarrow \omega = \frac{1}{2.5} = \boxed{0.4 \text{ Hz}}$

$$V_{\max} = A \cdot \omega \quad \left. \begin{array}{l} \\ \end{array} \right\} \quad 0.4 = A \cdot \omega$$

$$\text{como } T = \frac{2\pi}{\omega} \quad \left. \begin{array}{l} \\ \end{array} \right\} \quad 2.5 = \frac{2\pi}{\omega} \rightarrow \omega = \frac{2\pi}{2.5} = 0.8\pi \text{ rad/s}$$

⚡  
sustituir

$$0.4 = A \cdot 0.8\pi \rightarrow A = \frac{0.4}{0.8\pi} = \boxed{\frac{0.5}{\pi} \text{ m}}$$

(b)  $x = ?$

$$V = 10 \text{ cm/s} = 0.1 \text{ m/s} \quad x = A \cdot \omega \cdot \cos(\omega t + \varphi)$$

$$0.1 = \frac{0.5}{\pi} \cdot 0.8\pi \cdot \cos(\omega t + \varphi)$$

$$\cos(\omega t + \varphi) = 0.25 \rightarrow \text{con arcos- obtenemos } \omega t + \varphi$$

$$\text{como } x = A \cdot \text{sen}(\omega t + \varphi)$$

sustituimos  $A$  y  $(\omega t + \varphi)$  obtenemos  $x$  (metros)