

حل التمرين 12

-1

$$N = 1000 \text{ tr min}^{-1}$$

$$N = \frac{1000 \text{ tr}}{60 \text{ s}} \Rightarrow N = 16,67 \text{ Hz}$$

$$\omega = 2\pi N$$

$$\omega = 2\pi \times 16,67 \Rightarrow \omega = 105 \text{ rd.s}^{-1}$$

$$v = R\omega = \frac{D}{2} \omega \quad -2$$

$$v = 5.10^{-2} \times 105 \Rightarrow v = 5,25 \text{ m.s}^{-1}$$

$$\mathcal{P} = \mathcal{M} \cdot \omega \quad (1-3) \quad -3$$

$$\Rightarrow \mathcal{M} = \mathcal{P} / \omega \Rightarrow \mathcal{M} = 10^3 / 105 = 9,25 \text{ N.m}$$

$$W = \mathcal{M} \cdot \Delta\theta \quad (2-3)$$

$$W = \mathcal{M} \cdot 2\pi \cdot n$$

$$W = 9,52 \times 2\pi \times 10$$

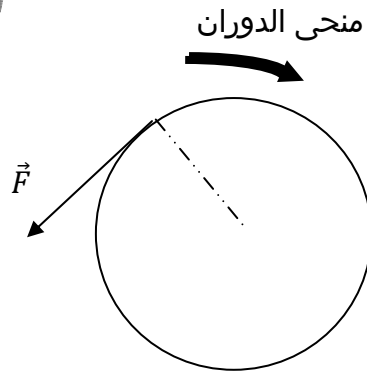
$$W = 598 \text{ J}$$

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$$W(\vec{F}) = M \cdot \Delta\theta$$

$$W(\vec{F}) = Fr \cdot 2\pi n$$

$$W(\vec{F}) = -393 \text{ J}$$



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