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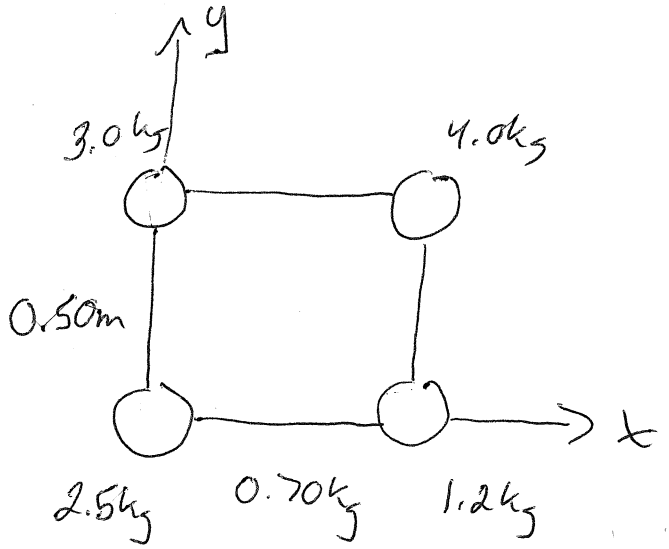

(1)

Determine the power required to accelerate the figure from rest to 2.5 rad/s in

1) x-axis,
2) y-axis,
3) z-axis.

1) $\omega_0 = 0$

$\omega = 2.5 \frac{rad}{s}$

$\Delta t = 6.4\,s$

$P = ?$

$$P = \frac{W}{\Delta t} = \frac{\Delta E}{\Delta t}$$ ← kinetic energy change in this case

$$E_{K_f} = \tfrac{1}{2} I \omega^2$$

$$E_{K_0} = 0$$

$$P = \frac{\frac{1}{2}\left(I_{3.0kg} + I_{4.0kg}\right)\omega^2}{6.4\,s}$$

$$I_{3.0kg} = m_3 r_3^2 = 3.0kg\,(0.50m)^2 = 0.75\ kgm^2$$

$$I_{4.0kg} = m_4 r_4^2 = 4.0kg\,(0.50m)^2 = 1.00\ kgm^2$$

$$P = \frac{\frac{1}{2}\left[(1.00\,kg\,m^2) + (0.75\,kg\,m^2)\right]\left(2.5\,rad/s\right)^2}{6.4\,s}$$

$$= 0.854\ W$$

$$\boxed{0.85\ W}$$

2)

$$I_4 = 4.0\,kg\,(.70\,kg)^2 = 1.96\,kg\,m^2$$

$$I_{1,2} = 1.2\,kg\,(.70\,kg)^2 = 0.588\,kg\,m^2$$

$$P = \frac{\frac{1}{2}\left(I_4 + I_{1,2}\right)\omega^2}{\Delta t}$$

$$P = \frac{\frac{1}{2}\left[(1.96\,kg\,m^2) + (0.588\,kg\,m^2)\right]\left(2.5\,rad/s\right)^2}{6.4\,s}$$

$$= 1.24\ W$$

$$\boxed{1.2\ W}$$

3)

$$P = \frac{\frac{1}{2}\left(I_3 + I_4 + I_{1,2}\right)\omega^2}{\Delta t}$$

$I_3 = 3.0\,kg\,(.50m)^2 = 0.75\,kg\,m^2$

$I_4 = 4.0\,kg\,(.50m^2 + .70m^2) = \cancel{0.613\,kg\,m^2}\ 2.96\,kg\,m^2$

$I_{1,2} = 1.2\,kg\,(.70m)^2 = 0.588\,kg\,m^2$

$$P = \frac{\frac{1}{2}\left(0.75\,kg\,m^2 + \cancel{0.613\,kg\,m^2}\ 2.96\,kg\,m^2 + 0.588\,kg\,m^2\right)\left(2.5\,\frac{rad}{s}\right)}{6.4\,s}$$

$= 2.099\,W$

$\boxed{2.1\,W}$