35. A B

$r = 0.25\,m$ $r = 0.75\,m$

$1.25\,kg = m = 1.25\,kg$

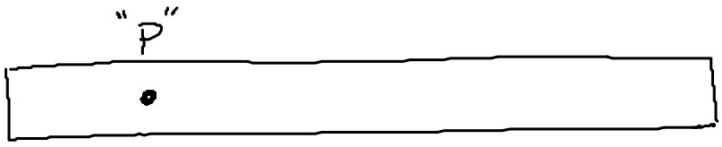
$235\,rad/s = \omega = 235\,rad/s$

$K_A = ?$ $K = \frac{1}{2} I\omega^2 = \frac{1}{2}\left[\frac{1}{2}mr^2\right]\omega^2$

$K_A = \frac{1}{2}\left(\frac{1}{2}(1.25)(0.25)^2\right)(235)^2 = 1079\,J$

$K_B = ?$ triple $r \rightarrow K \times 9 = 9708\,J$

37.



$I_P = ?$

$$I_P = I_{com} + Mh^2$$

$$I_P = \frac{1}{12} ML^2 + Mh^2$$

$$= \frac{1}{12}(0.56)(1)^2 + (0.56)(0.3)^2$$

$$I_P = 0.097 \ \ kgm^2$$

41. Must be able to do !

$I = ?$

$$I = I_{rod} + I_m + I_m$$

$$= \left[\frac{1}{12}ML^2 + Mh^2\right] + md^2 + m(2d)^2$$

$$= \left[\frac{1}{12}(2M)(2d)^2 + (2M)(d)^2\right] + md^2 + m(4d^2)$$

$$= \left[\frac{2}{3}Md^2 + 2Md^2\right] + 5md^2$$

$$= \frac{8}{3} M d^2 + 5 m d^2$$

$$= 8/3 (1.2)(0.056)^2 + 5(0.85)(0.056)^2$$

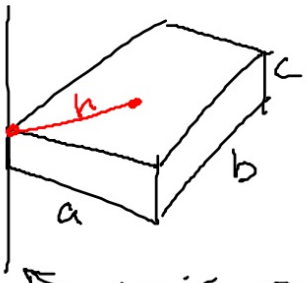
$$I = 0.0234 \ kgm^2$$

b) $K = ?$ $\quad K = \frac{1}{2} I \omega^2$

$$= \frac{1}{2} (0.0234)(0.3)^2$$

$$K = 0.00105 \ J$$

43.



$I = ?$

$a^2 + b^2 = (2h)^2$

$a^2 + b^2 = 4h^2$

$\frac{a^2+b^2}{4} = h^2$

↖ axis of rotation

$I_P = I_{com} + Mh^2$

$= \frac{1}{12} M(a^2+b^2) + M\left(\frac{a^2+b^2}{4}\right)$

$= \frac{1}{3} M(a^2+b^2)$

$= \frac{1}{3}(0.172)(0.035^2 + 0.084^2)$

$I = 4.7 \times 10^{-4}\ kg\,m^2$

40. b) $I = ?$ (treat like a rod)

$$I = \frac{1}{12} ML^2 = \frac{1}{12}(0.0001\ \text{kg})(1.0\ )^2$$

$$I = 8.33 \times 10^{-6}$$

a) $I = I_{\text{central}} + 2\left(I_1 + I_2 + \ldots + I_7\right)$

$$= \left[\frac{1}{2} m\left(\frac{L}{30}\right)^2\right] + 2\left([\ \ ] + mh^2 + [\ \ ]\right.$$