

B/14

$$I = I_{20} - I_{10} = \frac{1}{2} m_2 r_2^2 - \left[\frac{1}{2} m_1 r_1^2 + m_1 d^2 \right]$$

$$= \rho \pi t \left[\frac{r_2^4}{2} - \frac{r_1^4}{2} - r_1^2 d^2 \right]$$

With $m = \rho \pi t [r_2^2 - r_1^2]$,

$$k_o^2 = \frac{I}{m} = \frac{1}{2} (r_2^2 + r_1^2) - \frac{r_1^2 d^2}{(r_2^2 - r_1^2)}$$

$$= \frac{1}{2} (12^2 + 6^2) - \frac{6^2 4^2}{12^2 - 6^2} = 84.7 \text{ in.}^2$$

$$k_o = 9.20 \text{ in.}$$