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A/38 
$$T_{Z} = \frac{1}{2} \left[ \frac{\pi a^{4}}{2} - \frac{\pi \left(\frac{a}{2}\right)^{4}}{2} \right] = \frac{15}{64} \pi a^{4}$$

$$k_{Z} = \sqrt{\frac{1z}{A}} = \sqrt{\frac{15}{64} \pi a^{4}} = \frac{10}{4} a$$

$$From k_{\chi}^{2} + k_{y}^{2} = k_{z}^{2} \text{ and the fact that}$$

$$k_{\chi} = k_{y} \text{ for the present case},$$

$$2k_{\chi}^{2} = \left(\frac{10}{4} a\right)^{2}, \quad k_{\chi} = k_{y} = \frac{15}{4} a$$

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