

B/7

Error is
$$\frac{md^2 - (\frac{2}{5}mr^2 + md^2)}{\frac{2}{5}mr^2 + md^2}$$

$$= \frac{-1}{1 + \frac{5}{2}(\frac{d}{r})^2}$$

So percent error $e = \frac{-100}{1 + \frac{5}{2}(\frac{d}{r})^2}$

(a) $\frac{d}{r} = 2$: $|e| = 9.09\%$

(b) $\frac{d}{r} = 10$: $|e| = 0.398\%$