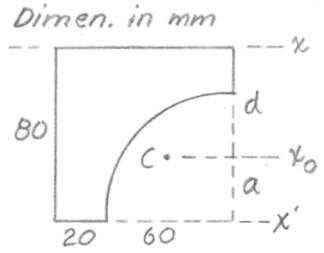
A/45



Square: $I_x = \frac{1}{3}b^4 = \frac{1}{3}(80)^4 = 13.65(10^6)\ mm^4$

Quarter-circle: $a = \frac{4r}{3\pi} = \frac{4(60)}{3\pi}$

$= 25.46\ mm$

$d = 80 - 25.46 = 54.54\ mm$

$I_x = I_{\bar{x}_0} + Ad^2 = I_{x'} - Aa^2 + Ad^2$

$= \frac{-1}{4}\frac{\pi r^4}{4} - \frac{\pi r^2}{4}(d^2 - a^2) = -\frac{\pi r^2}{4}\left(\frac{r^2}{4} + d^2 - a^2\right)$

$= -\frac{\pi(60)^2}{4}\left[\frac{60^2}{4} + (54.54)^2 - (25.46)^2\right]$

$= -9.120(10^6)\ mm^4$

Total $I_x = (13.65 - 9.120)(10^6) = \underline{4.53(10^6)\ mm^4}$