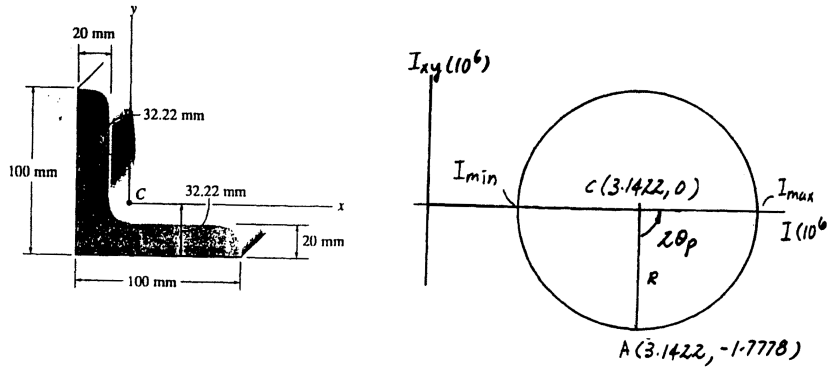


\*A-20 Solve Prob. A-19 using Mohr's circle.



$$I_x = I_y = \frac{1}{12}(80)(20^3) + 80(20)(32.22 - 10)^2 + \frac{1}{12}(20)(100^3) + 20(100)(50 - 32.22)^2$$

$$I_x = I_y = 3.1422(10^6) \text{ mm}^4$$

$$I_{xy} = \sum \bar{y}\bar{x}A = (-32.22 + 10)(50 - 32.22)(100)(20) + (60 - 32.22)(-32.22 + 10)(80)(20) = 1.7778(10^6) \text{ mm}^4$$

$$A(3.1422, -1.7778)(10^6)$$

$$C(3.1422, 0)$$

$$R = 1.7778$$

$$I_{\max} = (3.1422 + 1.7778)(10^6) = 4.92(10^6) \text{ mm}^4 \quad \text{Ans}$$

$$I_{\min} = (3.1422 - 1.7778)(10^6) = 1.36(10^6) \text{ mm}^4 \quad \text{Ans}$$

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