$$Q_x = \int y dA \qquad Q_y = \int x dA$$

$$Q_x = \sum \left(\int_{A_i} y dA \right) = \sum (Q_x) i = \sum A_i \bar{y}_i$$

$$Q_y = \sum \left(\int_{A_i} x dA \right) = \sum (Q_y) i = \sum A_i \bar{x}_i$$

$$\bar{x} = \frac{Q_y}{A} = \frac{\int x dA}{\int dA} \qquad \bar{y} = \frac{Q_x}{A} = \frac{\int y dA}{\int dA}$$

$$\bar{X} = \frac{\sum_i A_i \bar{x}_i}{\sum_i A_i} \qquad \bar{Y} = \frac{\sum_i A_i \bar{y}_i}{\sum_i A_i}$$

$$I_x = \int_A y^2\, dA \qquad I_y = \int_A x^2\, dA$$

$$I_x = \int_A y^2\, dA \qquad I_y = \int_A x^2\, dA$$

$$I_x = (I_x)_1 + (I_x)_2 + (I_x)_3 + \cdots$$

$$I_P = \int \rho^2 dA \qquad I_p \equiv I_x + I_y$$

$$I_{xy} = \int xy\, dA$$