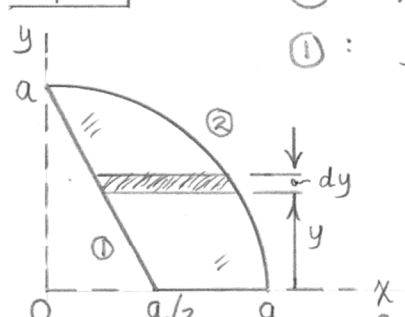


A/19



②:  $x^2 + y^2 = a^2$   
 ①:  $y = -2x + a$

$$dA = (x_2 - x_1) dy = \left[ \sqrt{a^2 - y^2} - \frac{a-y}{2} \right] dy$$

$$I_x = \int y^2 dA = \int_0^a y^2 \left[ \sqrt{a^2 - y^2} - \frac{a-y}{2} \right] dy$$

$$= \int_0^a \left[ y^2 \sqrt{a^2 - y^2} - \frac{ay^2 - y^3}{2} \right] dy$$

$$= \left[ -\frac{y}{4} \sqrt{(a^2 - y^2)^3} + \frac{a^2}{8} \left( y \sqrt{a^2 - y^2} + a^2 \sin^{-1} \frac{y}{a} \right) - \frac{ay^3}{6} + \frac{y^4}{8} \right]_0^a = a^4 \left[ \frac{\pi}{16} - \frac{1}{24} \right]$$

$$= \frac{a^4}{8} \left[ \frac{\pi}{2} - \frac{1}{3} \right]$$