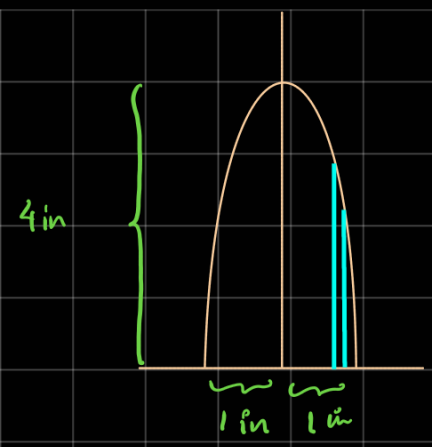
$$dA = y\,dx$$
$$= (4 - 4x^2)\,dx$$



$$I = \int x^2\,dA$$

$$= \int_{-1}^{1} x^2(4 - 4x^2)\,dx$$

$$= 4\int_{-1}^{1} x^2 - x^4\,dx$$

$$= \frac{4x^3}{3} - \frac{4x^5}{5}\Bigg|_{-1}^{1}$$

$$= \left(\frac{4}{3} - \frac{4}{5}\right) - \left(\frac{-4}{3} + \frac{4}{5}\right)$$

$$= \frac{4}{3} - \frac{4}{5} + \frac{4}{3} - \frac{4}{5}$$

$$= \frac{8}{3} - \frac{8}{5}$$

$$= \frac{40 - 24}{15}$$

$$= \frac{16}{15} \approx 1.07$$

b)