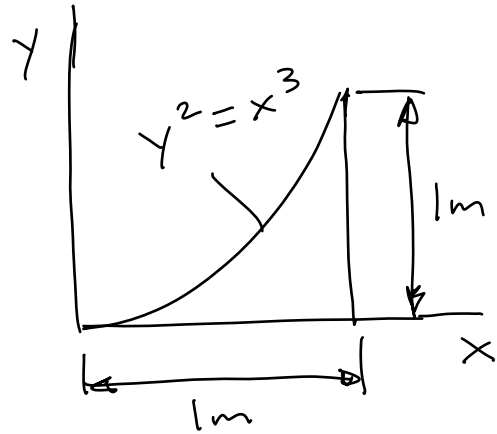
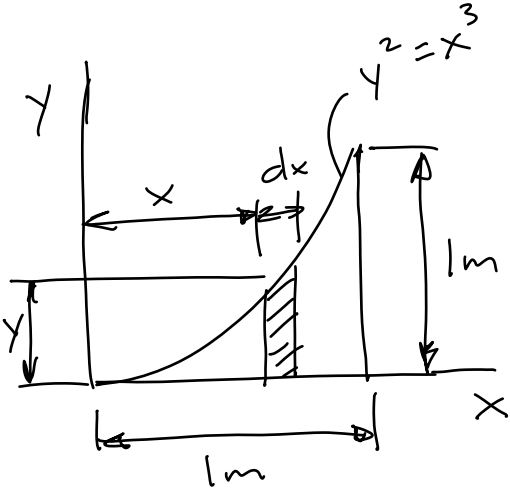


## Moment of Inertia

**Problem Statement:** Determine the moment of inertia about the y-axis.



$$I_y = \int \tilde{x}^2 dA$$

$$\tilde{x} = x$$

$$dA = y dx$$

$$I_y = \int_0^1 x^2 y dx$$

$$= \int_0^1 x^2 (x^{3/2}) dx$$

$$= \int_0^1 x^{7/2} dx = \frac{2}{9} x^{9/2} \Big|_0^1$$

$$\boxed{I_y = \frac{2}{9} m^4}$$

$$y^2 = x^3$$
$$y = x^{3/2}$$