

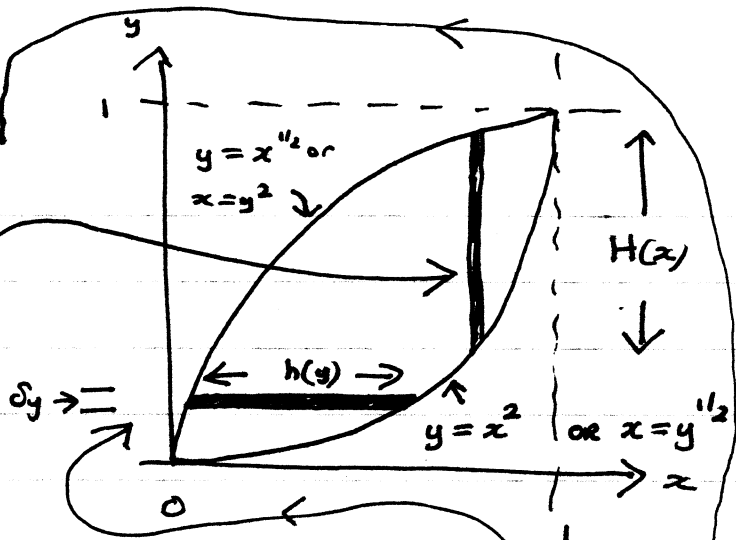
Method A:

$$\delta A = H(x) \delta x + o(\delta x)$$

$$\Rightarrow A = \int_{x=0}^{x=1} H(x) dx$$

$$= \int_{x=0}^{x=1} (x^{1/2} - x^2) dx$$

$$= \left(\frac{2}{3} x^{3/2} - \frac{x^3}{3} \right) \Big|_0^1 = \frac{2}{3} \cdot 1^{3/2} - \frac{1^3}{3} - 0 = \frac{1}{3}$$



Method B:

$$\delta A = h(y) \delta y + o(\delta y)$$

$$\Rightarrow A = \int_{y=0}^{y=1} h(y) dy = \int_0^1 (y^{1/2} - y^2) dy$$

= same thing.