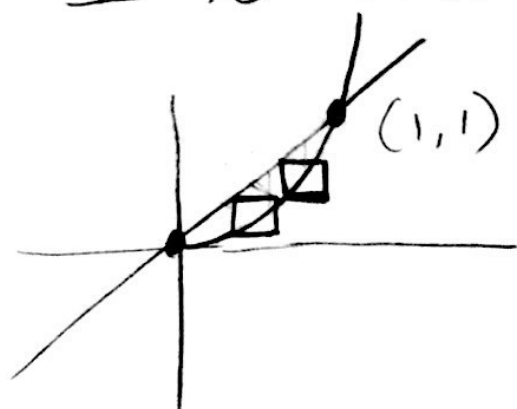


- Volume by Slicing (Cross Sections):

- 1) Sketch the solid and a typical cross section.
- 2) Find formula for $A(x)$
- 3) Find limits of integration
- 4) Integrate $A(x)$ to find volume

$$V = \int_a^b A(x) dx$$

* $y = x$, $y = x^2$, cross sections \perp to x -axis are squares.



$$A = s^2$$

$$s = x - x^2$$

$$V = \int_0^1 (x - x^2)^2 dx$$

$$= \int_0^1 (x^2 - 2x^3 + x^4) dx$$

$$= \frac{x^3}{3} - \frac{2x^4}{4} + \frac{x^5}{5} \Big|_0^1$$