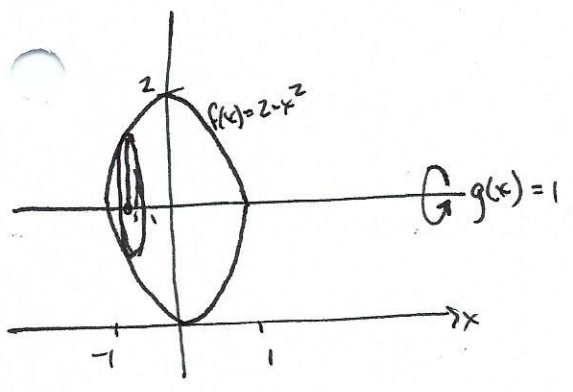


Ex. $f(x) = 2 - x^2$, $g(x) = 1$, rotate about $y = 1$



$$V = \pi \int_{-1}^1 (2 - x^2 - 1)^2 dx$$

$$= \pi \int_{-1}^1 (1 - x^2)^2 dx = \dots = \frac{16\pi}{15}$$

$$2 - x^2 = 1$$

$$1 = x^2$$

$$x = \pm 1$$

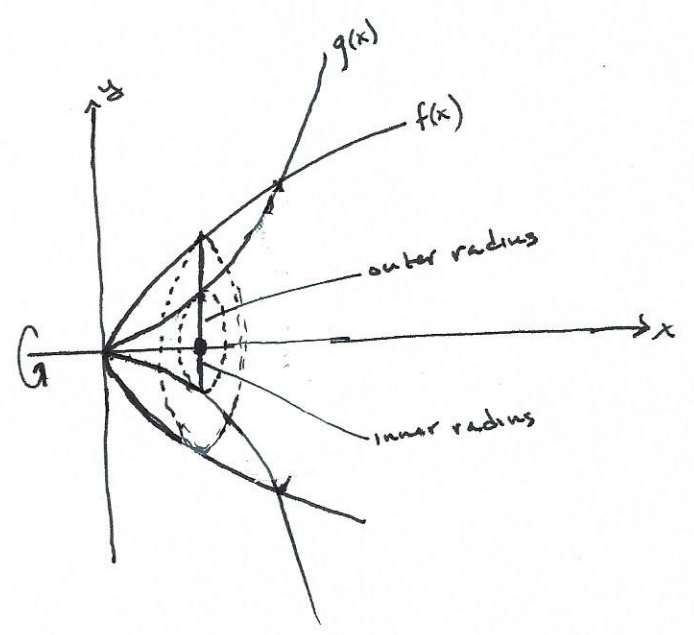
Ex. $f(x) = \sqrt{x}$ rotate about x-axis
 $g(x) = x^2$

$$\sqrt{x} = x^2$$

$$x = x^4$$

$$x(1 - x^3) = 0$$

$$x = 0, 1$$



$$V = \pi \int_0^1 \left[(\underbrace{\sqrt{x}}_{\text{outer radius}})^2 - (\underbrace{x^2}_{\text{inner radius}})^2 \right] dx$$

$$= \pi \int_0^1 (x - x^4) dx = \pi \left(\frac{x^2}{2} - \frac{x^5}{5} \right) \Big|_0^1 = \pi \left(\frac{1}{2} - \frac{1}{5} \right) = \frac{3\pi}{10}$$