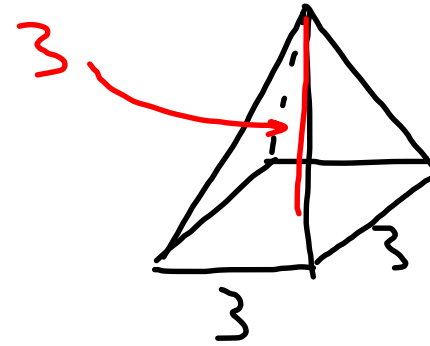


$$V = \int_a^b A(x) dx$$

We need an area  
function  
 $A(x) = x^2$

$$a = 0$$
$$b = 3$$

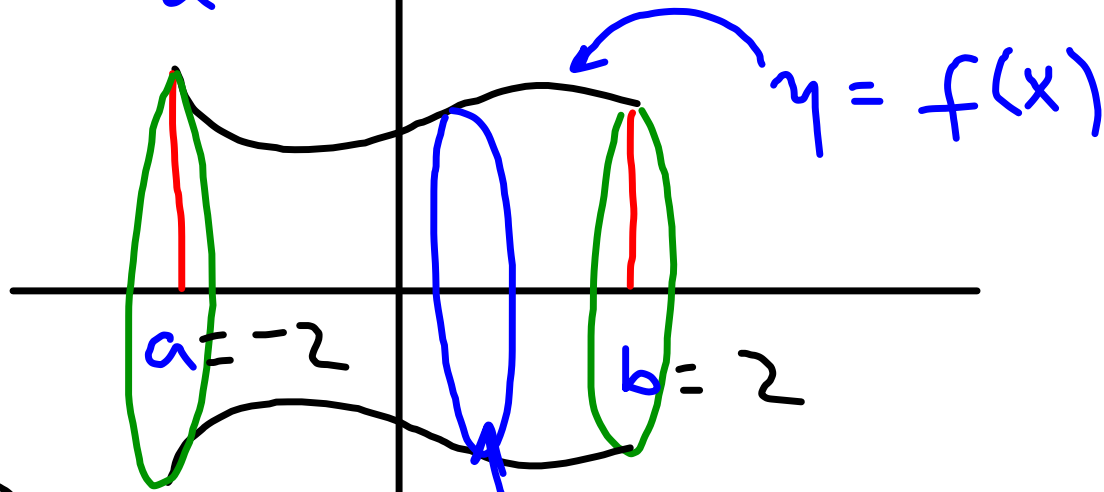
$$V = \frac{1}{3} Bh$$
$$= \frac{1}{3} (9) 3$$
$$= 9$$



$$\int_0^3 x^2 dx$$

$$\frac{x^3}{3} \Big|_0^3 = 9$$

$$V = \pi \int_a^b (f(x))^2 dx \quad f(x) = 2 + x \cos x$$



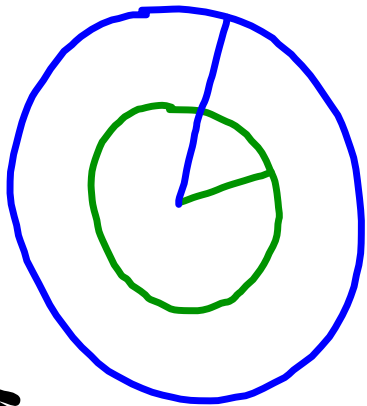
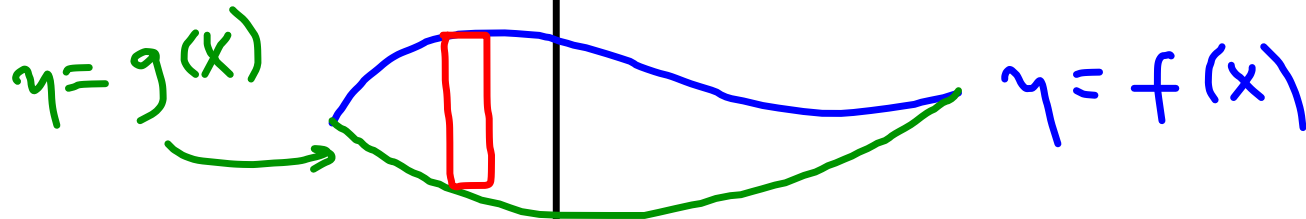
$$V = \pi \int_{-2}^2 (2 + x \cos x)^2 dx$$

$$\text{Area} = \pi \cdot (f(x))^2$$

$$\text{Volume} = \pi \cdot (f(x))^2 dx$$

$$\text{Area of blue circle} = \pi (f(x))^2$$

$$\text{Area of green circle} = \pi (g(x))^2$$



$$\text{area of washer} = \pi (f(x))^2 - \pi (g(x))^2$$
$$\text{or } \pi [(f(x))^2 - (g(x))^2]$$