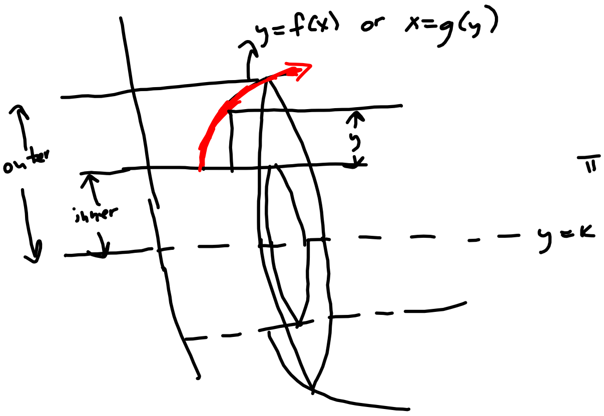
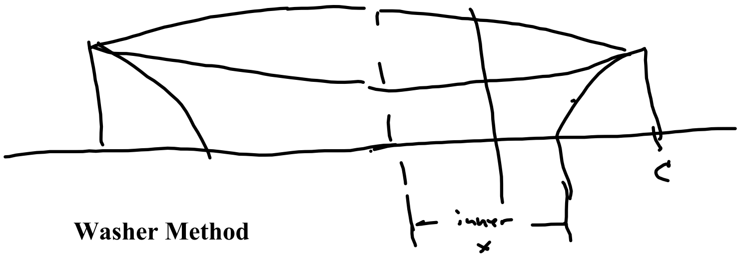


The basic idea

$$\pi \int y^2 dx = \pi \int f(x)^2 dx$$

Washer Method

$$\pi \int (outer^2 \; inner^2) dx$$



Washer Method

$$\int (outer^2 - inner^2) dy$$

d

The Basic idea:

$$\pi \int x^2 dy = \pi \int g(y)^2 dy$$

$$= \int ((c-d)^2 - (x-d)^2) dy$$

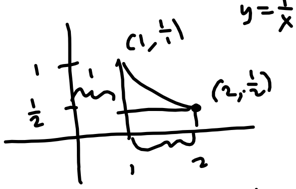
$$= \int ((c-d)^2 - (g(y)-d)^2) dy$$

$y = \sin(x) \Rightarrow$

$x = \arcsin(y)$

$y = \frac{1}{x}$

$y = \frac{1}{x} \Rightarrow x = \frac{1}{y}$



$$\text{area} = \int_1^2 \frac{1}{x} dx = (2-1)(\tfrac{1}{2}) + \int_{\frac{1}{2}}^{1} (\tfrac{1}{y} - 1) dy$$

about x-axis $\pi \int y^2 dx$

$$= \pi \int_1^2 (\tfrac{1}{x})^2 dx$$

about x-axis

$$\pi \int_0^{\frac{1}{2}} ((2^2 - 1^2) dy + \pi \int_{\frac{1}{2}}^{1} ((\tfrac{1}{y})^2 - 1^2) dy$$