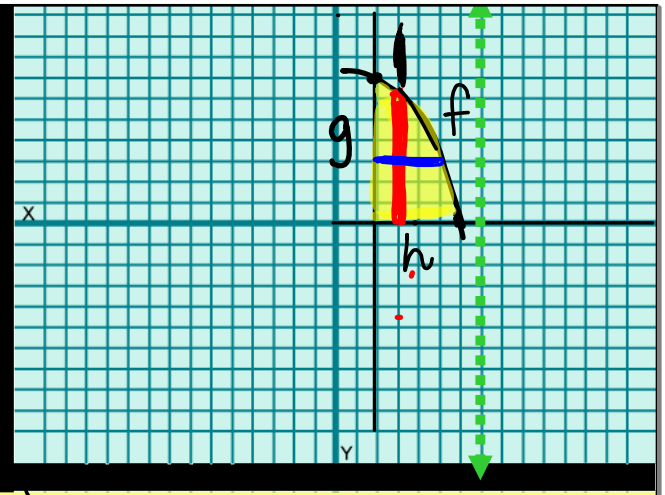
More Disk Method

$$\pi \int_a^b (r_o^2 - r_i^2)\, dx$$



About $y=-3$

$$\pi \int_2^6 \left((f+3)^2 - (h+3)^2 \right) dx$$

About $y=10$

$$\pi \int_2^6 \left((10-h)^2 - (10-f)^2 \right) dx$$

About $x=-5$

$$\pi \int_0^7 \left[(f-(-5))^2 - (g-(-5))^2 \right] dy$$

About $x=7$

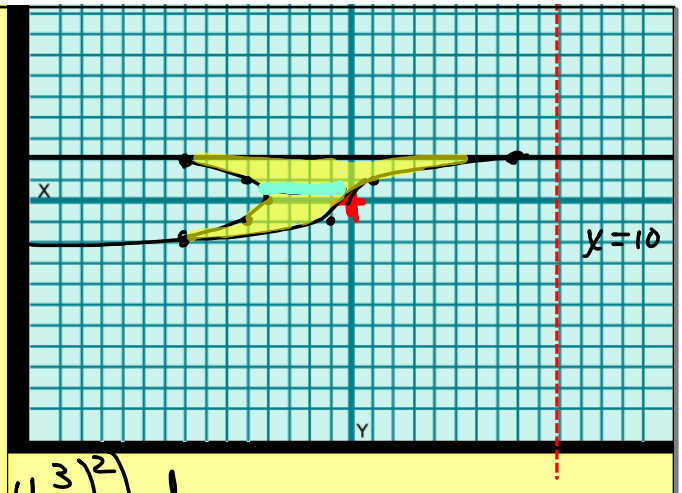
$$\pi \int_0^7 (7-g)^2 - (7-f)^2 \, dy$$

$y^3 = x$

$y = \sqrt[3]{x}$ $\quad y = 2$ ~~$x = 0$~~

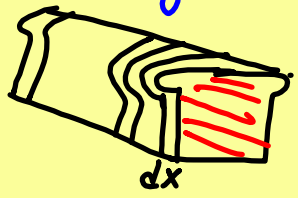
$x = -y^2 - 4$ about $x = 10$

0	0
1	1
8	2

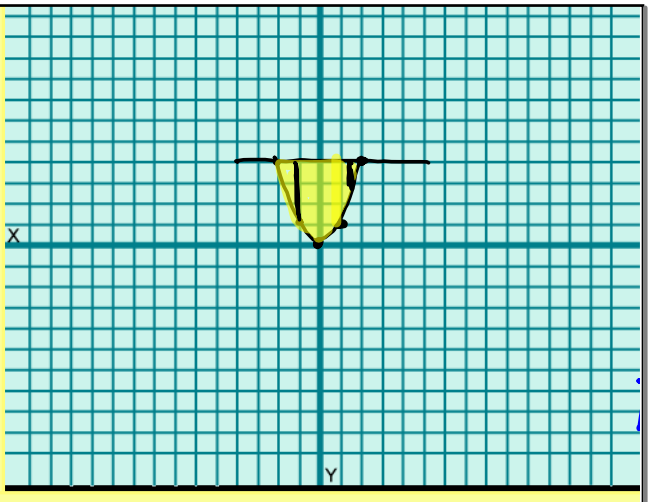


$$\pi \int_{-2}^{2} \left(\left(10 - (-y^2 - 4)\right)^2 - \left(10 - y^3\right)^2 \right) dy$$

Volume by Slicing



$\int A(x)\,dx$



Base is formed by
$y = x^2$ $y = 4$

Cross sections are squares.

$A = s^2$

$\int_{-2}^{2} (4 - x^2)^2\,dx = \_\_\_$ units^3

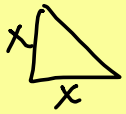
Semi-circles

$A = \frac{1}{2}\pi r^2$

$\frac{1}{2}\pi \left(\frac{4-x^2}{2}\right)^2$

$\frac{1}{2}\pi \int_{-2}^{2} \left(\frac{4-x^2}{2}\right)^2 dx$

Isosceles Right Δ's



$A = \frac{1}{2}bh = \frac{1}{2}s \cdot s = \frac{1}{2}s^2$

$\frac{1}{2}\int_{-2}^{2} (4 - x^2)^2\,dx$

Equilateral Δ

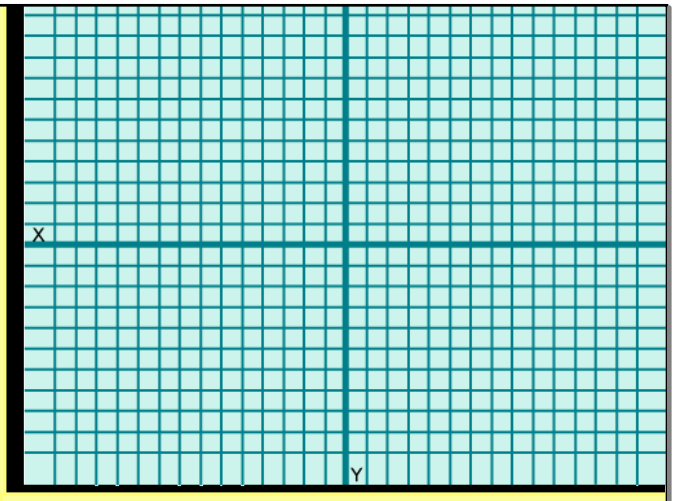
$= \frac{1}{2} \cdot s \cdot \frac{\sqrt{3}}{2} s$

$A = \frac{\sqrt{3}}{4} s^2$

Base

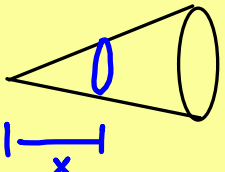
$y = \sqrt[3]{x}$ $y = -\frac{1}{2}x + 6$ $x = 0$

Cross sections are equilateral Δ's



39/ nose cone of space vehicle

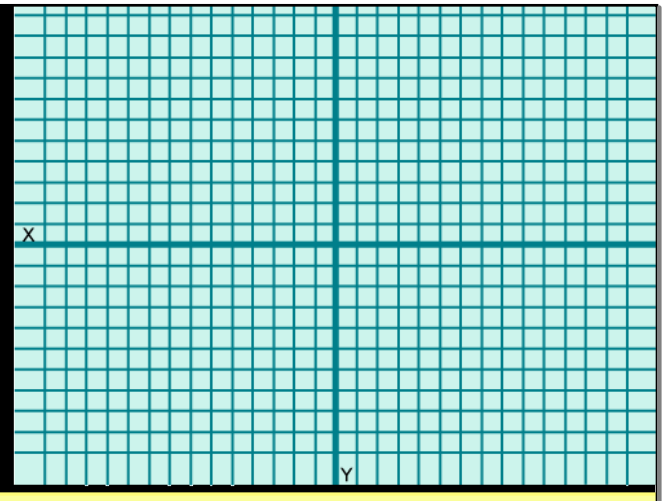
$r = \frac{1}{4}x^2$



Circles

$A = \pi r^2$

$\pi \int \left(\frac{1}{4}x^2\right)^2 dx$



40/ annulus

Dam Video