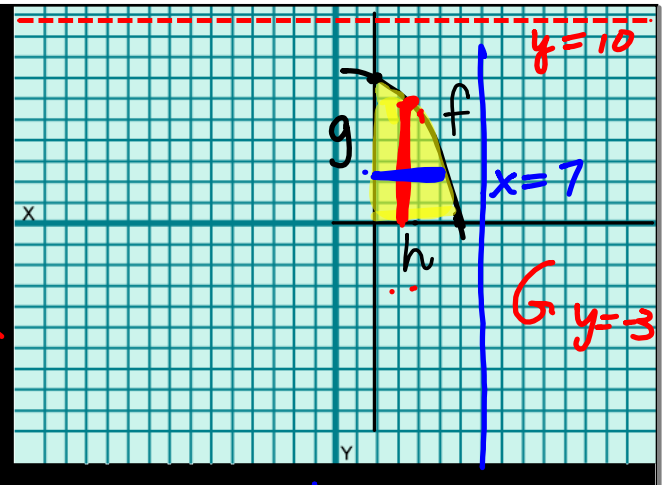
More Disk Method

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



About $y=-3$ $\quad \pi \int \left[(f+3)^2 - (h+3)^2\right] dx$

About $y=10$ $\quad \pi \int \left[(10-h)^2 - (10-f)^2\right] dx$

About $x=-5$ $\quad \pi \int_a^b \left[(f-5)^2 - (g-5)^2\right] dy$

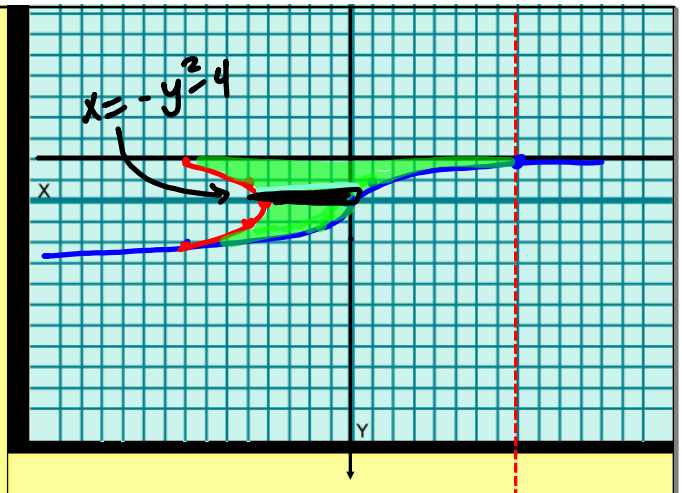
About $x=7$ $\quad \int_a^b \left[(7-g)^2 - (7-f)^2\right] dy$

$y^3 = x$

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

$x = -y^2 - 4$ about $x=3$

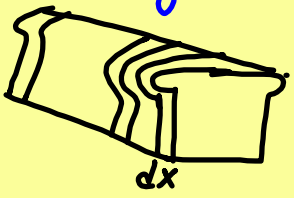
0	0
1	1
8	2



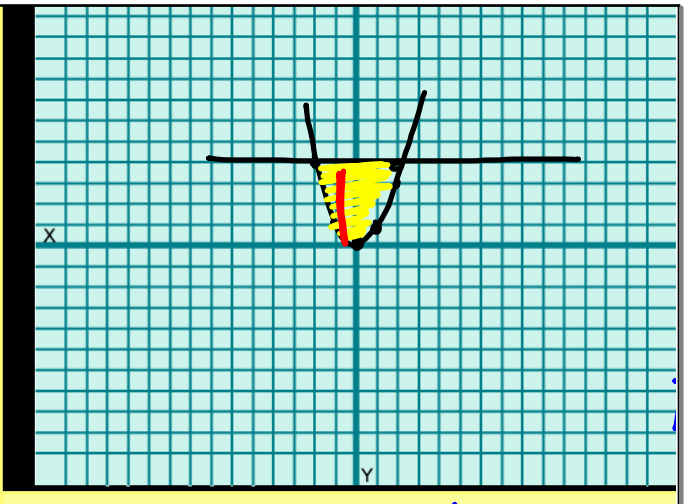
$$\pi \int_{-2}^{2} \left[\left(8 - (y^2 - 4)\right)^2 - \left(8 - y^3\right)^2 \right] dy$$

$x = 3$

Volume by Slicing



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



Cross sections are squares.

$A = s^2$

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

Isosceles Right Δ's

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

Semi-circles

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

Equilateral Δ's

$A = \frac{1}{2}b \cdot h$

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

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

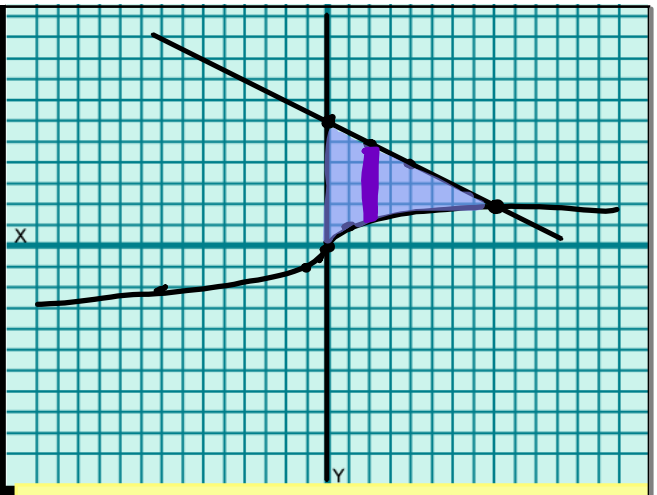
Base

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

Cross sections are equilateral Δ's

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

$$\frac{\sqrt{3}}{4} \int_0^8 \left(-\frac{1}{2}x + 6 - \sqrt[3]{x} \right)^2 dx$$



Semicircles: $A = \frac{\pi}{2} r^2$

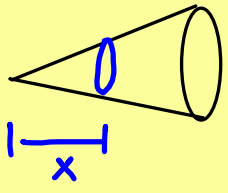
$$\frac{\pi}{2} \int_0^8 \left(\frac{-\frac{1}{2}x + 6 - \sqrt[3]{x}}{2} \right)^2$$

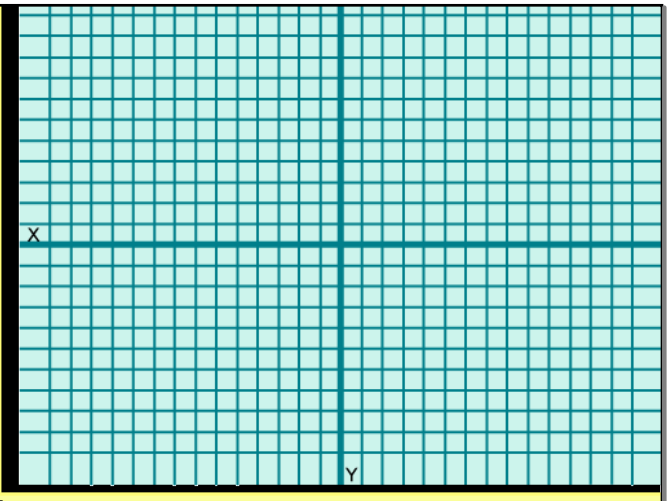
39/ nose cone of space vehicle

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

Circles

$A =$





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