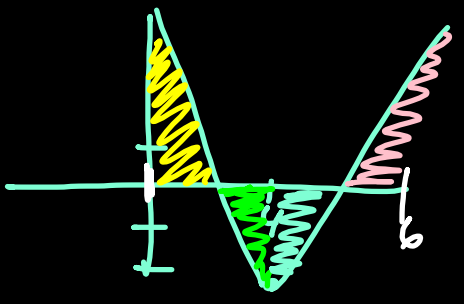
February 24, 2022

Area + Volume Review

$y = 3|x-4|-2$ $0, 6$



$3(x-4)-2 = 3x-12-2$
$= 3x-14$

$-3(x-4)-2 = -3x+12-2$
$= -3x+10$

Formulas

Disk Method

$$\pi \int_a^b \left[(r_o)^2 - (r_i)^2\right] dx$$

▯ is ⊥ to axis of rev

around x-axis: $y = x$'s

around y-axis $x = y$'s

Shell Method

$$2\pi \int_a^b r\,(f-g)\,dx$$

▯ is ∥

x-axis: $x = y$'s

y-axis $y = x$'s

Slicing

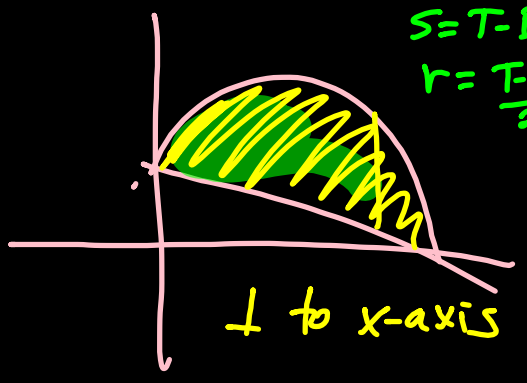
Square $A = s^2$

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

Isosceles Rt. $\triangle$ $A = \frac{1}{2}s^2$

$\frac{1}{2}bh$

Equil. $\triangle$'s - $A = \frac{\sqrt{3}}{4}s^2$



Slices are cross sections of the solid