Good afternoon

no warm up, we will continue our study of area under curves with horizontally opposed rectangles when the bell rings

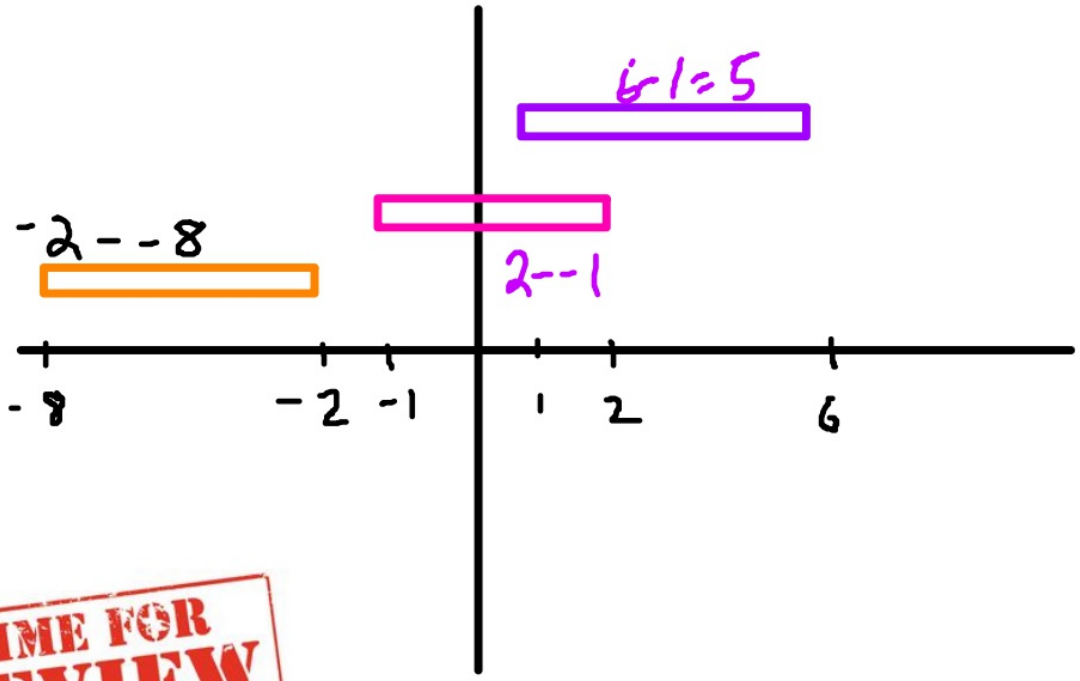
Reminders

tutoring/retakes tomorrow 4-5p

last Q3 assessment will be on Monday* (jr retreat??)

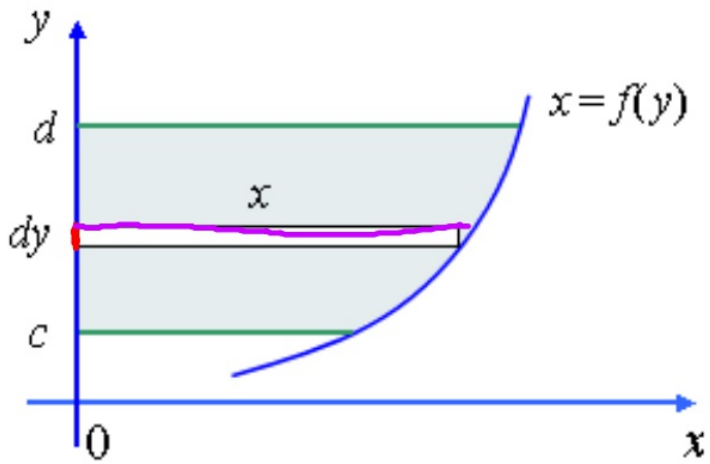
Q3 ends a week from Thursday! Grades locked at 4pm

How 'wide' are these rectangles?



in general:
right minus left

General form



$$A = \int_c^d x \, dy = \int_c^d f(y) \, dy$$

x: width of rectangle

dy: height

Find the area of the region bounded by $y = \sqrt{x-1}$ and the lines y=1 and y=3.

horizontal

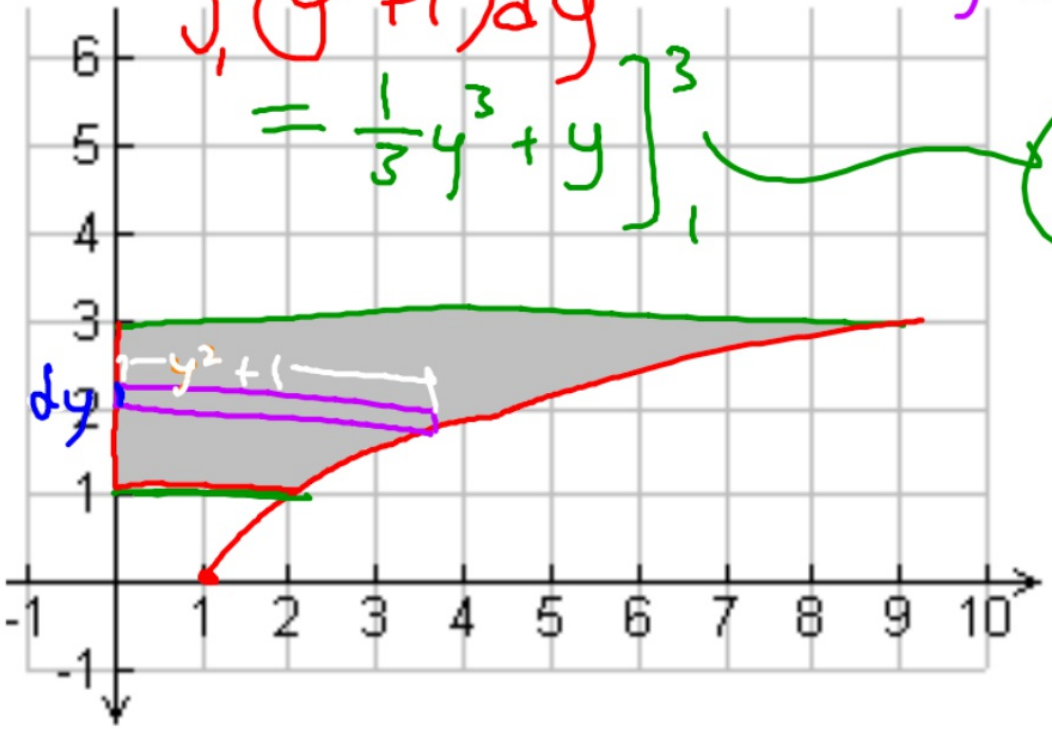
$y^2 = x - 1$

$y^2 + 1 = x$

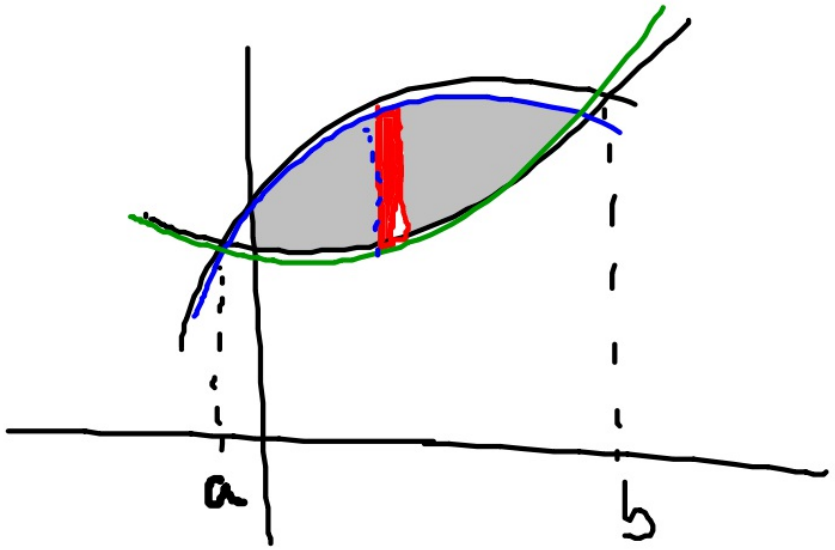
$\int_1^3 (y^2+1)\,dy$

$= \frac{1}{3}y^3 + y \Big]_1^3$

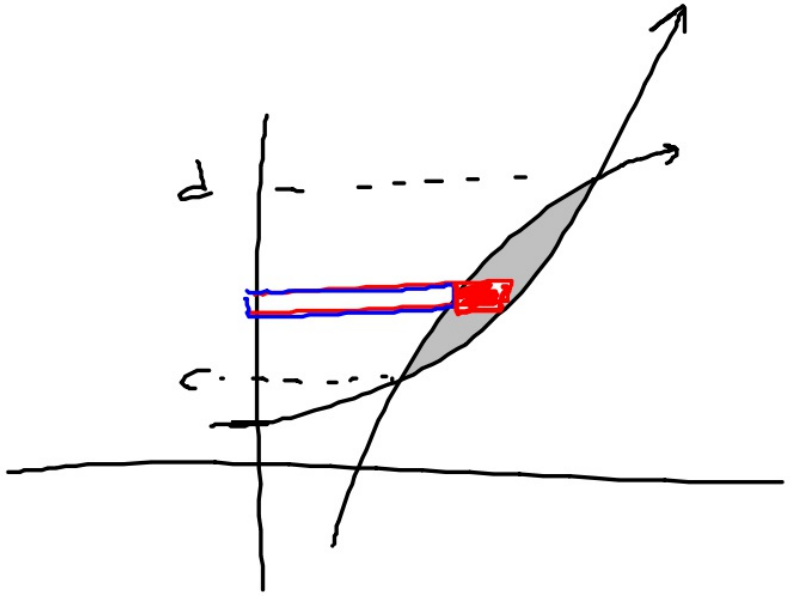
$10\frac{2}{3}$



Area Between Curves revisitec NEW

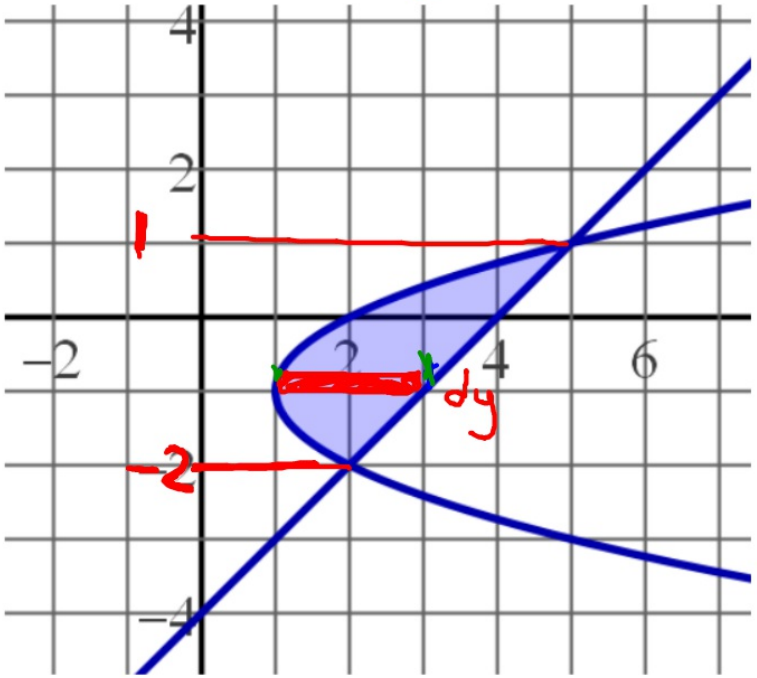


$$\int_a^b \text{top} - \text{bottom}\, dx$$



$$\int_c^d \text{right} - \text{left}\, dy$$

$x = y^2 + 2y + 2, \quad x = y + 4$



$$\int_{-2}^{1} y+4-(y^2+2y+2)\,dy$$

$$\int_{-2}^{1} y+4-y^2-2y-2\,dy$$

$$\int_{-2}^{1} 2-y-y^2\,dy$$

$$\left[2y-\frac{1}{2}y^2-\frac{1}{3}y^3\right]_{-2}^{1}$$

$$\left(2-\frac{1}{2}-\frac{1}{3}\right)-\left(-4-2+\frac{8}{3}\right)$$

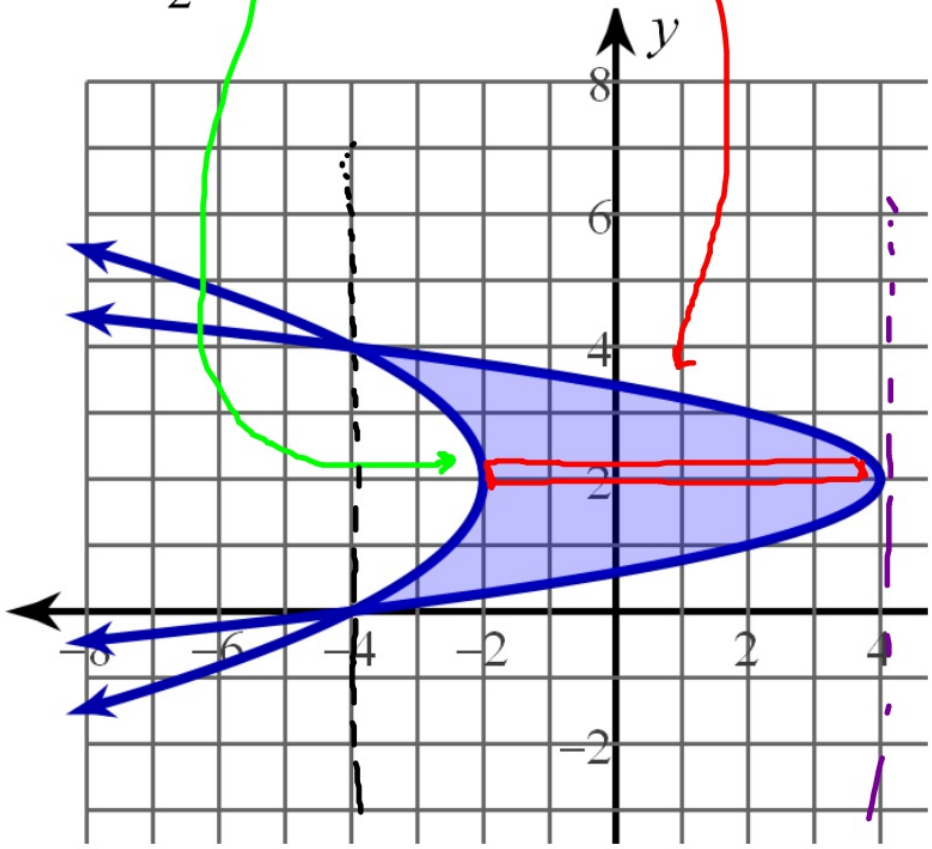
$$\left(\frac{12}{6}-\frac{3}{6}-\frac{2}{6}\right)-\left(-\frac{12}{3}-\frac{6}{3}+\frac{8}{3}\right)$$

$$\frac{7}{6}-\left(\frac{-10}{3}\right)=\frac{7}{6}+\frac{20}{6}=\frac{27}{6}$$

(4.5) ← 27/6

Now try #8 on the hw handout from last wk

$x = -\frac{y^2}{2} + 2y - 4, \quad x = -2y^2 + 8y - 4$



$$\int_0^4 -2y^2 + 8y - 4 + \frac{y^2}{2} - 2y + 4 \, dy$$

$$\int_0^4 -\frac{3}{2}y^2 + 6y \, dy$$

$$\left[-\frac{1}{2}y^3 + 3y^2 \right]_0^4$$

$$= 16$$

Submit Answers from AP Packet

see link @ mcalc.weebly.com

HW

area between curves dy, backside of handout #7-12