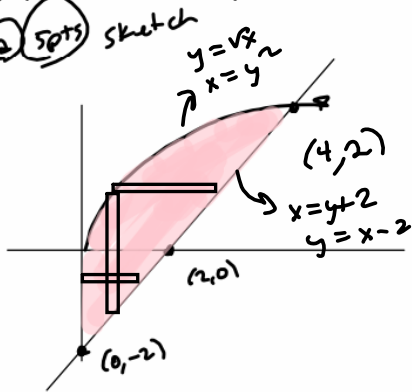


11/25/24	14	5.1, 5.2, 6.1	
12/2/24	15	6.2 - 6.4 Writing Project #3 Due Friday, 12/6	→ FRIDAY AFTER WE GET BACK
12/9/24	16	Written Final, Monday, 12/9 WebAssign Test 5, Comprehensive Final, Open Dates: Friday, 12/6 - Tuesday, 12/10	WP#3 is good prep. So are old tests.

→ Deadline: 12/13

Monday 12/9 is "official" day.
12/9-12/10 is OK by me.

② Area bdd by $y = \sqrt{x}$, $y = x - 2$, $x = 0$
 ② 5pts sketch



$$\begin{aligned} \sqrt{x} &= x - 2 \\ x &= (x - 2)^2 = x^2 - 4x + 4 \end{aligned} \Rightarrow$$

$$\begin{aligned} x^2 - 4x + 4 &= x \\ x^2 - 5x + 4 &= 0 \\ (x - 4)(x - 1) &= 0 \\ \sqrt{1} &= 1 - 2? \text{ No} \\ \sqrt{4} &= 4 - 2? \text{ Yes} \end{aligned}$$

Method 1: $\int_0^4 (\sqrt{x} - (x - 2)) dx = \int_a^b (\text{upper} - \text{lower})$

$$\int_{-2}^2 (\text{RIGHT} - \text{LEFT}) = \int_{-2}^0 ((x - 2) - 0) dy + \int_0^2 (\text{RIGHT} - \text{LEFT})$$

No. $x = y + 2$

$f(x) = \sqrt{x} = y \Rightarrow$	}	$= \int_{-2}^0 (y + 2) dy + \int_0^2 ((y + 2) - y^2) dy$
$x = y^2$ LEFT		
$y = x - 2 \Rightarrow$		
$x = y + 2$ RIGHT		

Method 1:

$$\int_0^4 (x - (x-2)) dx = \int_0^4 x^{\frac{1}{2}} dx - \int_0^4 (x-2) dx = \left[\frac{2}{3} x^{\frac{3}{2}} \right]_0^4 - \left[\frac{x^2}{2} - 2x \right]_0^4$$

$$= \frac{2}{3} (4)^{\frac{3}{2}} - \left(\frac{4^2}{2} - 2(4) \right) = \frac{2}{3} (2)^3 - \left(\frac{16}{2} - 8 \right)$$

$$= \frac{2}{3} (8) = \boxed{\frac{16}{3}}$$

$$\int_{-2}^0 (y+2) dy + \int_0^2 ((y+2) - y^2) dy$$

$$= \left[\frac{y^2}{2} + 2y \right]_{-2}^0 + \left[\frac{y^2}{2} + 2y - \frac{y^3}{3} \right]_0^2 = \left(0 - \left(\frac{(-2)^2}{2} + 2(-2) \right) \right)$$

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

$$= -(-2) + \left(6 - \frac{8}{3} \right) = -(-2) + \left(\frac{18-8}{3} \right) = 2 + \frac{10}{3} = \frac{6+10}{3} = \boxed{\frac{16}{3}}$$

Same. That's a good sign I did it right.