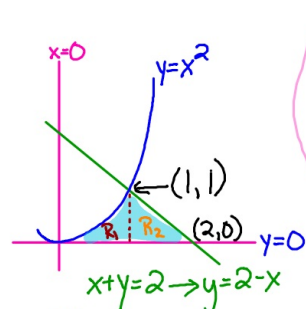


November 9

SWBAT:

Find the area of a
described region

Find the area bound by
the curves
 $y = x^2$
and
 $x + y = 2$
and the
line $y = 0$
In the first
quadrant



$$\begin{aligned} & \int_0^1 x^2 dx + \int_1^2 2 - x dx \\ &= \left. \frac{x^3}{3} \right|_0^1 + \left(2x - \frac{x^2}{2} \right) \Big|_1^2 \\ &= \frac{1^3}{3} - \frac{0^3}{3} + \left(2(2) - \frac{2^2}{2} - \left(2(1) - \frac{1^2}{2} \right) \right) \\ &= \frac{1}{3} + \left(4 - 2 - \left(2 - \frac{1}{2} \right) \right) \\ &= \frac{1}{3} + \frac{1}{2} = \frac{2}{6} + \frac{3}{6} = \frac{5}{6} \end{aligned}$$

$$\begin{aligned} y = x^2 &\rightarrow x = \sqrt{y} \\ x + y = 2 &\rightarrow x = 2 - y \end{aligned}$$

$$\begin{aligned} & \int_0^1 2 - y - \sqrt{y} dy \\ &= \int_0^1 2 - y - y^{1/2} dy \\ &= 2y - \frac{y^2}{2} - \frac{y^{3/2}}{3/2} \Big|_0^1 \\ &= 2(1) - \frac{1^2}{2} - \frac{2}{3}(1)^{3/2} - (0) \\ &= 2 - \frac{1}{2} - \frac{2}{3} \\ &= 2 - \frac{3}{6} - \frac{4}{6} = 2 - \frac{7}{6} = \frac{5}{6} \end{aligned}$$