

What you'll Learn About

- Finding the area between 2 curves

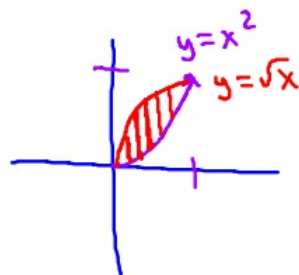
A) Find the area between the curve  $y = \sqrt{x}$  and the x-axis from  $[0, 1]$ .

$$\int_0^1 x^{1/2} = \left. \frac{2}{3} x^{3/2} \right|_0^1 = \frac{2}{3}$$

B) Find the area between the curve  $y = x^2$  and the x-axis from  $[0, 1]$ .

$$\int_0^1 x^2 = \left. \frac{1}{3} x^3 \right|_0^1 = \frac{1}{3}$$

C) Find the area between the curves  $y = x^2$  and  $y = \sqrt{x}$

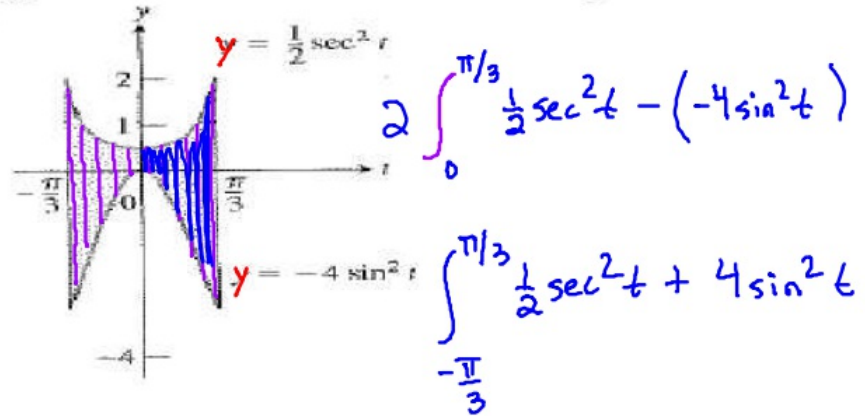


Area between 2 curves

$$\int_0^1 \text{Top} - \text{Bottom}$$
$$\int_0^1 \sqrt{x} - x^2 =$$

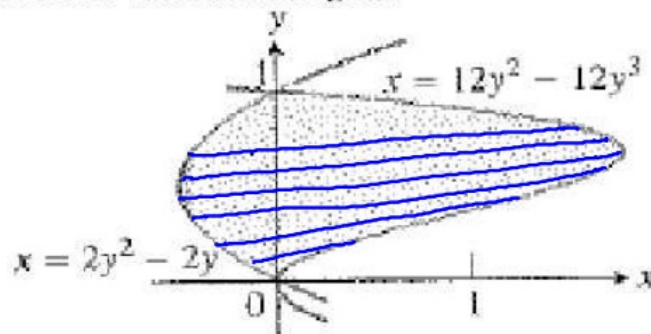
Using your calculator find the area of the shaded region.

2.



Find the area of the shaded region.

4.



Solved for x  $\rightarrow$   $\int$  Right - Left

$$\int_0^1 (12y^2 - 12y^3) - (2y^2 - 2y)$$

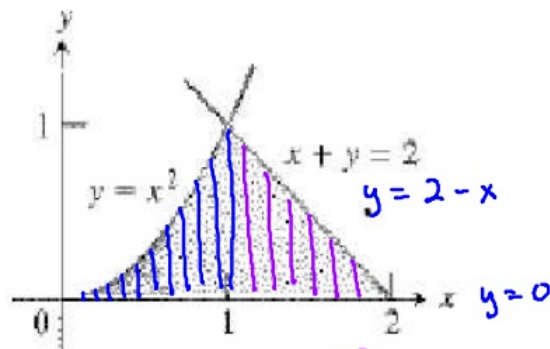
$$\int_0^1 -12y^3 + 10y^2 + 2y = -3y^4 + \frac{10}{3}y^3 + y^2 \Big|_0^1$$

$$(-3 + \frac{10}{3} + 1) - (0)$$

$$\frac{4}{3}$$

Find the area of the shaded region.

10.

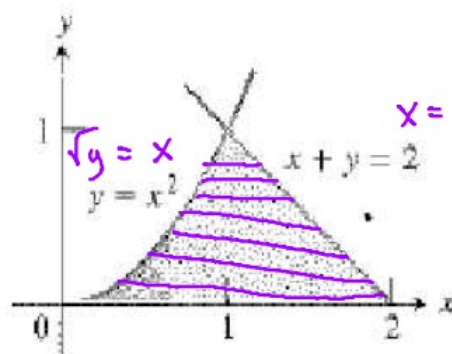


$$\int_0^1 x^2 - 0 + \int_1^2 2 - x - 0$$

$$\left. \frac{1}{3}x^3 \right|_0^1 + \left. 2x - \frac{1}{2}x^2 \right|_1^2 = \frac{1}{3} + (4-2) - \left(2 - \frac{1}{2}\right)$$

Find the area of the shaded region.

10.



$$\int_0^1 2 - y - \sqrt{y}$$

$$\left. 2y - \frac{1}{2}y^2 - \frac{2}{3}y^{3/2} \right|_0^1 = 2 - \frac{1}{2} - \frac{2}{3}$$

$$\frac{3}{2} - \frac{2}{3}$$

$$\frac{9}{6} - \frac{4}{6} = \frac{5}{6}$$