Wednesday, May 1, 2019 12:31 PM

$$\frac{dy}{dx} = \frac{x}{y}$$

$$\int y\,dy = \int x\,dx$$

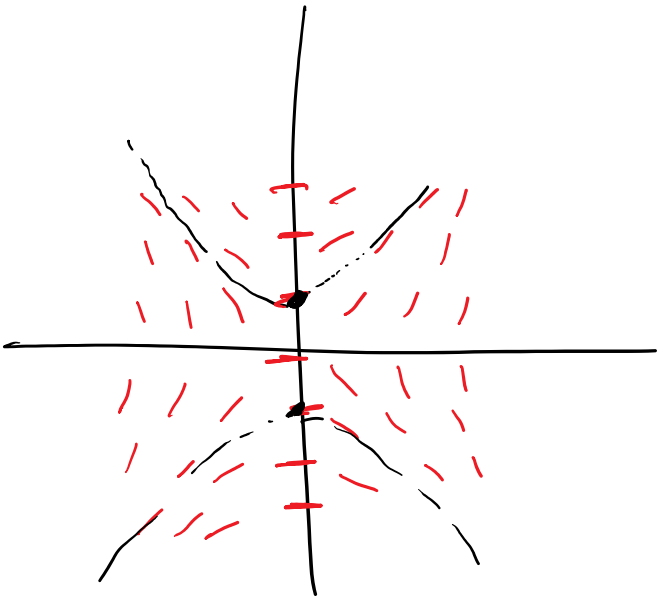
$$\frac{1}{2}y^2 = \frac{1}{2}x^2 + C$$

$$y^2 = x^2 + C$$

$$y = \pm\sqrt{x^2 + C}$$

$$1 = \sqrt{0^2 + C} \qquad C = 1$$

$$y = \sqrt{x^2 + 1}$$

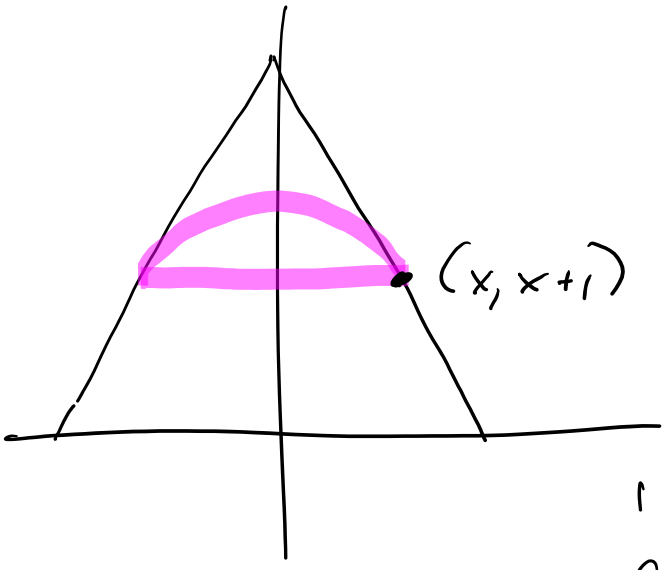


$$-1 = -\sqrt{0^2 + C} \qquad C = 1$$

$$y = -\sqrt{x^2 + 1}$$

$$\frac{dB}{dt} = \frac{1}{5}(10v - B) = 2v - \frac{1}{5}B$$

$$\frac{d^2B}{dt^2} = \frac{d}{dt}\left(\frac{dB}{dt}\right) = \frac{d}{dt}\left(2v - \frac{1}{5}B\right) = -\frac{1}{5}\frac{dB}{dt}$$



or $(y-1, y)$

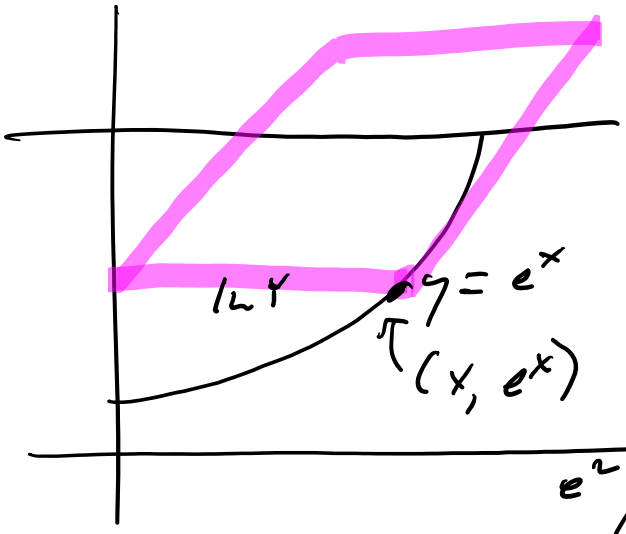
$r = y - 1$

$\text{area} = \frac{\pi}{2}(y-1)^2$

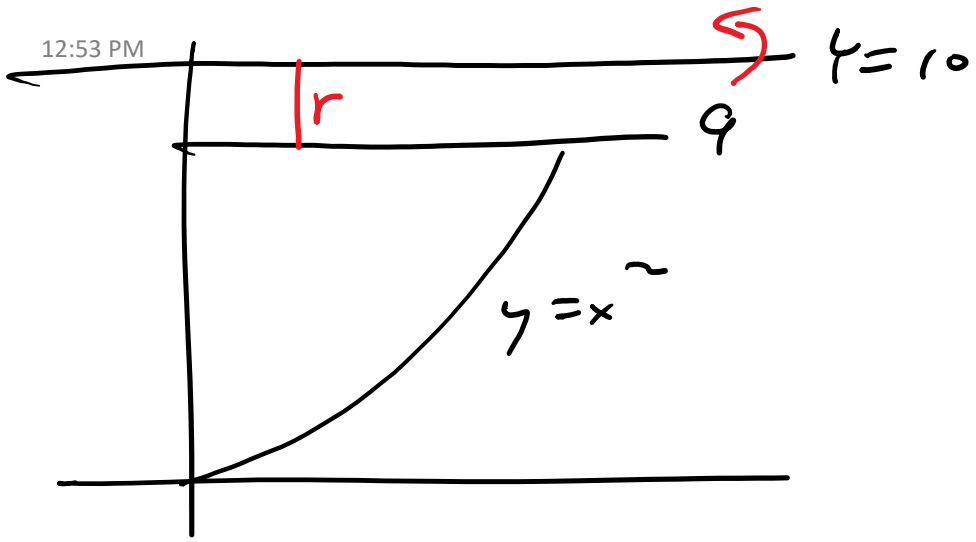
$$\frac{\pi}{2}\int_0^1 (y-1)^2\,dy$$

$y = e^x$

$\ln y = x$



$$\int_1^{e^2} (\ln y)^2 \, dy$$


y=10
r
9
y=x~

$$\lim_{t \to 0} \frac{\sin t}{t} = 1$$

$$\lim_{t \to 0} \frac{1 - \cos t}{t} = 0$$

Wednesday, May 1, 2019 12:57 PM

$$\lim_{x \to 0} 3 \left(\frac{\sin 3x}{3x} \right) \to 1 = 3$$

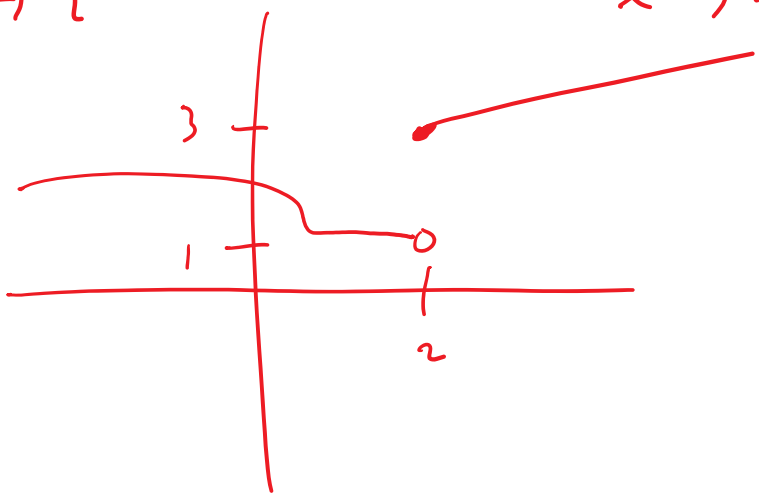
$$\lim_{t \to 9} \frac{\sqrt{t} - 3}{t - 9} \quad \frac{0}{0}$$

$$(\sqrt{t} - 3)(\sqrt{t} + 3)$$

$$\xrightarrow{L.R.} \frac{\frac{1}{2}t^{-1/2}}{1} = \frac{1}{2\sqrt{t}} = \frac{1}{6}$$

Sketch $f(x)$ if

$\lim_{x \to 2^-} f(x) = 1$ $\lim_{x \to 2^+} f(x) = 3$



Wednesday, May 1, 2019 1:04 PM

$\lim_{x \to 2} f(x) = L$ if

The one-sided limits match

$f(x)$ is continuous at $x = 2$ if

$$\lim_{x \to 2^-} f = \lim_{x \to 2^+} f = f(2)$$