$$\frac{d}{dt}\left(\frac{\sqrt[3]{t^2}-2\sqrt{t}+2}{\sqrt{t}}\right)$$

$$\frac{d}{dt}\left(\frac{(t^{2/3}-3t^{1/2}+2)}{t^{1/2}}\right)$$

$$\frac{d}{dt}\left((t^{2/3}-3t^{1/2}+2)(t^{-1/2})\right)$$

$$\frac{d}{dt}\left(t^{\frac{2}{3}-\frac{1}{2}}-3\cdot t^{\frac{1}{2}-\frac{1}{2}}+2t^{-1/2}\right)$$

$$\frac{d}{dt}\left(t^{1/6}-3\cdot 1+2t^{-1/2}\right)$$

$$\frac{1}{6}t^{-5/6}-0+2\cdot\frac{-1}{2}t^{-3/2}$$

$$\frac{1}{6}t^{-5/6}-1t^{-3/2}$$

Ax^b

Gettin' triggy with it. 

$\sin(4x) \longrightarrow 4\cos(4x)$

$\cos(4x) \longrightarrow -4\sin(4x)$

$\tan(4x) \longrightarrow 4\sec^2(4x)$

$\csc(2x^2) \longrightarrow -4x\csc(2x^2)\cot(2x^2)$

$\sec(2x^2) \longrightarrow 4x\cdot\sec(2x^2)\tan(2x^2)$

$\cot(2x^2) \longrightarrow -4x\cdot\csc^2(2x^2)$

$$y = e^{\sin(x)}$$

$$y' = \cos(x) \cdot e^{\sin(x)}$$

$$f(x) = \underbrace{2x}_{f} \cdot \underbrace{\ln(2x)}_{g}$$

$f'g + fg'$

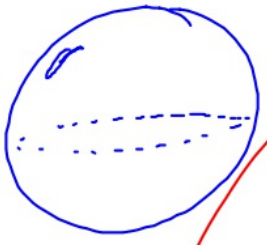
$$2 \cdot \ln(2x) + 2x \cdot \frac{1}{x}$$

$$\boxed{2\ln(2x) + 2} \quad e^{\frac{2x'}{x}}$$

$\frac{d}{dx}\ln(x) = 1/x$

$f' = 2$

$g' = \frac{1}{2x} \cdot 2 = \frac{2}{2x} = \frac{1}{x}$



$V = \frac{4}{3}\pi r^3$

"radius is dec. by 4 cm a minute"...

$\frac{dr}{dt} = -4$ cm/min

$\frac{dV}{dt} = ?$

Drury Lane

$\frac{d}{dt}(V) = \frac{d}{dt}\left(\frac{4}{3}\pi r^3\right)$ Don't plug in anything til after the Derivative.

$\frac{dV}{dt} = 4\pi r^2 \cdot \frac{dr}{dt}$

$\frac{dV}{dt} = 4\pi(6^2) \cdot \frac{dr}{dt}$

$4 \cdot \pi 36 \cdot -4$

$\frac{dV}{dt}$ -576π $\frac{cm^3}{min}$