

New Group
3.5 #5

$$x^3 + y^3 = 1$$

$$\frac{d}{dx} [x^3 + y^3] = \frac{d}{dx} [1]$$

$$3x^2 + 3yz \cdot \frac{dy}{dx} = 0$$

$$\frac{dy}{dx} = \frac{-\cancel{3}x^2}{\cancel{3}y^2} = -\frac{x^2}{y^2}$$

3.4 #19

$$\left(\frac{d}{dx}\right) (\cot(x)) = \left(\frac{d}{dx}\right) \left(\frac{\cos(x)}{\sin(x)}\right)$$

$$\frac{\sin(x) \left(\frac{d}{dx}(\cos(x))\right) - \cos(x) \left(\frac{d}{dx}(\sin(x))\right)}{\sin(x)^2}$$

$$\frac{-\sin(x)^2 - \cos(x)^2}{\sin(x)^2} = \frac{(-1)(\sin(x)^2 + \cos(x)^2)}{\sin(x)^2}$$

$$\frac{(-1)(1)}{\sin(x)^2}$$

$$\frac{-1}{\sin(x)^2} = -\csc^2(x)$$

$$\begin{aligned} \sin(x) &= \frac{\text{opp}}{\text{hyp}} & \cos(x) &= \frac{\text{adj}}{\text{hyp}} \\ \text{hyp} &= \sqrt{\text{opp}^2 + \text{adj}^2} \\ \frac{\text{opp}^2}{\text{hyp}^2} + \frac{\text{adj}^2}{\text{hyp}^2} &= \frac{\text{opp}^2 + \text{adj}^2}{\left(\sqrt{\text{opp}^2 + \text{adj}^2}\right)^2} \\ &= 1 \end{aligned}$$

Grundle Pumpkins

Sam Tabia

TIEJUN WEN

Save The Polar Bears

Jalisha Crews
Melva Avila
Kristian Fcher

3.5

#28

$$x^{2/3} + y^{2/3} = 4 \quad (-3\sqrt{3}, 1)$$

$$\frac{d}{dx} x^{2/3} + y^{2/3} = \frac{d}{dx} 4$$

$$\frac{d}{dx} x^{2/3} + \frac{d}{dx} y^{2/3} = 0$$

$$\frac{2}{3} x^{-1/3} + \frac{2}{3} y^{-1/3} \frac{dy}{dx} = 0$$

$$\frac{2}{3} y^{-1/3} \frac{dy}{dx} = -\frac{2}{3} x^{-1/3}$$

$$\frac{dy}{dx} = \frac{-\frac{2}{3} x^{-1/3}}{\frac{2}{3} y^{-1/3}} = -\frac{x^{-1/3}}{y^{-1/3}}$$

$$\frac{dy}{dx} = \frac{-(-3\sqrt{3})^{-1/3}}{1^{-1/3}} = 1.732$$

$$y - 1 = 1.732(x - 3\sqrt{3})$$

$$y - 1 = 1.732x - 9$$

$$y = 1.732x - 8$$

L.W.V

Letrice
Wilgens
Viviene

3.6
Differentiation
Rules

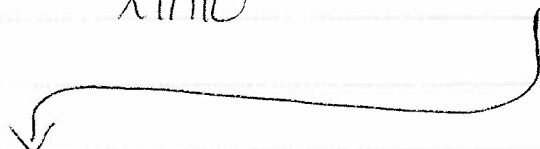
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$$y = 2x \log_{10} \sqrt{x}$$

$$y = 2x \log_{10} (x)^{1/2}$$

$$y = 2x \cdot \frac{1}{2} \log_{10} x = x \log_{10} x$$

$$y' = x \cdot \frac{1}{x \ln 10} + \log_{10} x \cdot 1 = \frac{1}{\ln 10} + \log_{10} x$$


$$y' = \frac{1}{\ln 10} + \log_{10} x$$

3.6

#6

We Love Math

Krystina

Stephanie

Jessica

$$f(x) = \log_5(xe^x)$$

$$f'(x) = \frac{1}{xe^x \ln 5} \cdot \frac{d}{dx}(xe^x)$$

$$f'(x) = \frac{1}{xe^x \ln 5} \cdot (xe^x + e^x)$$

$$f'(x) = \frac{xe^x + e^x}{xe^x \ln 5}$$

$$f'(x) = \frac{e^x(x+1)}{xe^x \ln 5}$$

$$f'(x) = \frac{x+1}{x \ln 5}$$

CLARC

3.6 # 24

Find y' & y''

$$y = \frac{\ln x}{x^2}$$

$$\frac{d}{dx} \left[\frac{f(x)}{g(x)} \right] = \frac{g(x) \frac{d}{dx} [f(x)] - f(x) \frac{d}{dx} [g(x)]}{[g(x)]^2}$$

$$y' = \frac{(x^2) \frac{d}{dx} [\ln x] - (\ln x) \frac{d}{dx} [x^2]}{(x^2)^2}$$

$$y' = \frac{(x^2) \left(\frac{1}{x}\right) - (\ln x)(2x)}{x^4}$$

$$y' = \frac{x - 2x \ln x}{x^4}$$

$$y' = x^{-3} - \frac{2 \ln x}{x^3}$$

$$y'' = x^{-3} - \left[\frac{x^3 \frac{d}{dx} (2 \ln x) - (2 \ln x) \frac{d}{dx} x^3}{(x^3)^2} \right]$$

$$y'' = 3x^{-4} - \frac{x^3 \left(\frac{2}{x}\right) - 2 \ln x (3x^2)}{x^5}$$