New Group

3.5 #5

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

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

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

$$\frac{dy}{dx} = \frac{-3x^2}{3x^2} = \frac{-x^2}{y2}$$

3.4 #19

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

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

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

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

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

$\sin(x) = \frac{opp}{hyp}$ $\cos(x) = \frac{adj}{hyp}$

$hyp = \sqrt{opp^2 + adj^2}$

$$\frac{opp^2}{hyp^2} + \frac{adj^2}{hyp^2} = \frac{opp^2 + adj^2}{\left(\sqrt{opp^2 + adj^2}\right)^2}$$

$$\frac{opp^2 + adj^2}{opp^2 + adj^2} = 1$$

Grandle Pumpkins

Sam Tabia

TIEJUN WEN

Save The Polar Bears

Jalisha Creus
Melva Avila
Kristian Feher

3.5

#28

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

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

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

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

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

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

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

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

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

$$y = 1.732x - 8$$

L.W.V
Letrice
Wilgens
Viviene

3.6
Differentian
Rules

3/1/10

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

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

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

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

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

3.6

#6

we love Math

Krystina

Stephanie

Jocelyn

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

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

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

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

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

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

CLARC

3.6 # 24

Find y' & y''

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

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

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

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

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

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

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