April 22

Students will verbally explain how to find the derivative using implicit differentiation

(using the words: differential, separate, solve, etc...)

$\sin(x) + 3y^2 = 2x^4 - y^3$

find $\frac{dy}{dx}$

$\cos(x)\,dx + 6y\,dy = 8x^3\,dx - 3y^2\,dy$

$-6y\,dy \qquad -6y\,dy$

$\cos(x)\,dx = 8x^3\,dx - 3y^2\,dy - 6y\,dy$

$-8x^3\,dx \qquad -8x^3\,dx$

$\cos(x)\,dx - 8x^3\,dx = -3y^2\,dy - 6y\,dy$

$\frac{dx(\cos(x) - 8x^3)}{dx} = \frac{dy(-3y^2 - 6y)}{dx}$

$\frac{\cos(x) - 8x^3}{(-3y^2 - 6y)} = \frac{\frac{dy}{dx}(-3y^2 - 6y)}{(-3y^2 - 6y)}$

$\frac{\cos(x) - 8x^3}{-3y^2 - 6y} = \frac{dy}{dx}$

$xy + 3x = \sin^4 y$

find $\frac{dy}{dx}$

$x(y) + 3x = (\sin y)^4$

$1(dx)(y) + 1(dy)(x) + 3dx = 4(\sin y)^3 \cos y\,dy$

$-1(dy)(x) \qquad -1(dy)(x)$

$1(dx)y + 3dx = 4(\sin y)^3 \cos y\,dy - 1(dy)x$

$\frac{dx(y+3)}{dx} = \frac{dy(4\sin^3 y\cos y - x)}{dx}$

$\frac{y+3}{4\sin^3 y\cos y - x} = \frac{\frac{dy}{dx}(4\sin^3 y\cos y - x)}{4\sin^3 y\cos y - x}$

$\frac{dy}{dx} = \frac{y+3}{4\sin^3 y\cos y - x}$

calculate the derivative with respect to x.

$3y^3 + x^2 = 5$

$x^3R^5 = 1$

$x^2y + 2x^3y = x + y$

find $\frac{dy}{dx}$