

Implicit Differentiation Worksheet

- Use *implicit differentiation* to find $\frac{dy}{dx}$
 - $\sin y = x^2$
 - $x \cos y + y = x^3$
 - $y^2 = \sin(x - 1)$
 - $\cos(2y) = \sqrt{1 - x^2}$
 - $\ln(y) = xe^x$
 - $e^y = e^{3x} + 5$
 - $y + y^3 = x^2$
 - $y^2 + \sin y = \sin x$
 - $y(x + 1) - y^2 = x$
- If y is given implicitly by the equation $e^{\sin y} + y = x^2$, find $\frac{dy}{dx}$ in terms of x and y .
- If y is given implicitly by the equation $xe^{\sin y} = e^y$, find $\frac{dy}{dx}$ in terms of x and y .
- If $x^2y + \ln(y^2 + x) = 6$, use implicit differentiation to find an expression for $\frac{dy}{dx}$.