Implicit Differentiation Problems

Math 213, Calculus III

Professor Smith

1. Find $\dfrac{dy}{dx}$ for the function y defined implicitly in terms of x.

   (a) $y^5 + x^2y^3 = 1 + ye^{x^2}$

   (b) $\cos(x - y) = xe^y$

2. Find $\dfrac{\partial z}{\partial x}$ and $\dfrac{\partial z}{\partial y}$ for the function z defined implicitly in terms of x and y.

   (a) $xyz = \cos(x + y + z)$

   (b) $yz = \ln(x + z)$