

Implicit Differentiation

1. Find $\frac{dy}{dx}$ for the following implicitly defined functions:

(a) $x^4 + y^4 = 3x^3 + 2$

(b) $xy = x^2 + 3y^2$

(c) $\cos(x^2 + y) = \frac{5}{x}$

2. Find the equation of the tangent line to $x^2 + xy + y^2 = 3$ at the point $(1,1)$.