

HW 2.5 Implicit Differentiation

Find dy/dx by implicit differentiation.

1. $x^2 + y^2 = 36$

3. $x^{1/2} + y^{1/2} = 9$

5. $x^3 - xy + y^2 = 4$

7. $x^3 y^3 - y = x$

11. $\sin x + 2 \cos 2y = 1$

13. $\sin x = x(1 + \tan y)$

15. $y = \sin(xy)$

Find dy/dx by implicit differentiation and evaluate the derivative at the given point.

21. $xy = 4, (-4, -1)$

23. $y^2 = \frac{x^2 - 4}{x^2 + 4}, (2, 0)$

25. $x^{2/3} + y^{2/3} = 5, (8, 1)$

27. $\tan(x + y) = x, (0, 0)$

Find $\frac{d^2 y}{dx^2}$ in terms of x and y .

45. $x^2 + y^2 = 36$

47. $x^2 - y^2 = 16$

49. $y^2 = x^3$

Find the equation of the tangent line to the graph at the given point.

51. $\sqrt{x} + \sqrt{y} = 4, (9, 1)$