19 Lecture - MTH101

Important Mcqs

What is the formula for finding the derivative of an implicit function?

A. dy/dx = f'(x)

B. dx/dy = f'(y)

C. dy/dx = -f'(x)/f'(y)

D. dx/dy = -f'(y)/f'(x)

Answer: C

What is the first step in implicit differentiation?

A. Solve for x

B. Solve for y

C. Differentiate both sides with respect to x

D. Differentiate both sides with respect to y

Answer: C

What is the derivative of y^2 with respect to x using implicit differentiation?

A. 2y

B. 2xy

C. 2yx

D. 0

Answer: C

What is the derivative of x^2 + y^2 = 25 with respect to x using implicit differentiation?

A. dy/dx = -x/y

B. dy/dx = -y/x

C. dy/dx = x/y

D. dy/dx = y/x

Answer: A

What is the second derivative of y^2 = x^3 using implicit differentiation?

A. d^2y/dx^2 = -2x/y

B. d^2y/dx^2 = -y/2x

C. d^2y/dx^2 = 2x/y

D. d^2y/dx^2 = y/2x

Answer: B

What is the derivative of sin(x^2 + y^2) using implicit differentiation?

A. cos(x^2 + y^2)

B. 2x cos(x^2 + y^2)

C. 2y cos(x^2 + y^2)

D. 2(x+y) cos(x^2 + y^2)

Answer: D

What is the derivative of y^(1/2) using implicit differentiation?

A. (1/2) y^(-1/2)

B. (1/2) y^(1/2)

C. (1/2) y^(3/2)

D. (1/2) y^(2)

Answer: A

What is the derivative of x^2y^3 + xy = 6 using implicit differentiation?

A. dy/dx = -2x/3y

B. dy/dx = -3y/2x

C. dy/dx = -2y/3x

D. dy/dx = -3x/2y

Answer: C

What is the equation of the tangent line to x^2 + y^2 = 16 at the point (3, -sqrt(7)) using implicit differentiation?

A. y = 2x - sqrt(7)

B. y = 2x + sqrt(7)

C. y = -2x - sqrt(7)

D. y = -2x + sqrt(7)

Answer: D

What is the derivative of ln(xy) using implicit differentiation?

A. (1/x) + (1/y)

B. (y/x^2) + (x/y^2)

C. (1/y) + (x/y^2)

D. (1/x) + (y/x^2)

Answer: C