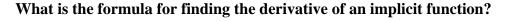
# 19 Lecture - MTH101

# **Important Mcqs**



- 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?

## 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