16 Lecture - MTH101

Important Mcqs

What is the derivative of f(x) = x^3 + 4x^2 - 5x - 2?

a) f'(x) = 3x^2 + 8x - 5

b) f'(x) = 3x^2 + 8x + 5

c) f'(x) = 3x^3 + 8x^2 - 5x - 2

d) f'(x) = 3x^2 + 4x - 5

Solution: The derivative of f(x) is f'(x) = 3x^2 + 8x - 5. Therefore, the correct answer is an option (a).

What is the derivative of f(x) = sin(x)cos(x)?

a) f'(x) = cos(x)sin(x)

b) f'(x) = cos^2(x) - sin^2(x)

c) f'(x) = -sin(x)cos(x)

d) f'(x) = 2cos(x)sin(x)

Solution: Using the product rule, we get f'(x) = cos(x)cos(x) - sin(x)sin(x) = cos^2(x) - sin^2(x). Therefore, the correct answer is option (b).

What is the derivative of f(x) = 3x^4 - 2x^3 + 5x^2 - 4x + 1?

a) f'(x) = 12x^3 - 6x^2 + 10x - 4

b) f'(x) = 12x^3 - 6x^2 + 5x - 4

c) f'(x) = 3x^3 - 2x^2 + 5x - 4

d) f'(x) = 3x^3 - 2x^2 + 10x - 4

Solution: The derivative of f(x) is f'(x) = 12x^3 - 6x^2 + 10x - 4. Therefore, the correct answer is option (a).

What is the derivative of f(x) = e^x cos(x)?

a) f'(x) = e^x sin(x)

b) f'(x) = e^x(cos(x) + sin(x))

c) f'(x) = e^x(cos(x) - sin(x))

d) f'(x) = e^x(cos(x) - cos(x))

Solution: Using the product rule, we get f'(x) = e^x cos(x) - e^x sin(x) = e^x(cos(x) - sin(x)). Therefore, the correct answer is option (c).

What is the derivative of f(x) = ln(5x)?

a) f'(x) = 1/(5x)

b) f'(x) = 5ln(x)

c) f'(x) = 5/(ln(x))

d) f'(x) = 1/x

Solution: Using the chain rule, we get f'(x) = 1/(5x). Therefore, the correct answer is option (a).

What is the derivative of f(x) = x^2 ln(x)?

a) f'(x) = 2x ln(x) + x

b) f'(x) = x ln(x)

c) f'(x) = 2x ln(x) + 2x

d) f'(x) = 2x ln(x) + x^2

Solution: Using (a)