Edulyte

CHAIN RULE FORMULA

The chain rule is a fundamental concept in differential calculus that allows us to find the derivative of composite functions. It provides a formula for calculating how the function's rate of change is related to the rate of change of its parts at a given point. The chain rule plays a crucial role in solving problems involving composite functions in calculus.

Read more

Q1: Which of the following represents the derivative of a composite function more formally?

A: d(f + g)/dx
B: (df/dx) + (dg/dx)
C: (df/dg) * (dg/dx)
D: d(f * g)/dx

Q2: What is the derivative of sin(x^2) with respect to x using the chain rule?

A: cos(x^2)
B: 2x * cos(x²)
C: 2x * sin(x)
D: 2 * sin(x^2)

Q3: What is the derivative of e^(3x^2) with respect to x using the chain rule?

A: 3x^2 * e^(3x^2)
B: 6x * e^(3x^2)
C: e^(3x^2)
D: 9x^3 * e^(3x^2)

Q4: If f(x) is ex and g(x) is 4x, use the chain rule and find h'(x)

A: 4e⁴x
B: 4ex
C: 5ex
D: 4ex²

Q5: What is the derivative of 5x² concerning x using the chain rule?

A: 12x
B: 15x
C: 18x
D: 10x

Q6: What will be the derivative of the function y = cos (2x² + 1) with the chain rule?

A: 4x sin + cos 2x
B: 2x cos + 4 sin
C: -4x sin (2x² + 1)
D: 2x² + cos 1

Q7: What is the derivative of 4x² + 3 concerning x using the chain rule?

A: 2x
B: 8x
C: 6x
D: 5x

Q8: What is the derivative of 3x² + 3y concerning x using the chain rule?

A: 6x
B: 2x
C: 8x
D: 9x

Q9: What is the derivative of sin x + cos y concerning x using the chain rule?

A: sin x + cos y
B: sin y + cos x
C: sin y
D: cos x

Q10: What is the derivative of 9x² + 3y - 2 concerning y using the chain rule?

A: 3x
B: 4
C: 3
D: 4x

Answers

Q1: C - (df/dg) * (dg/dx)

Q2: B - 2x * cos(x²)

Q3: B - 6x * e^(3x^2)

Q4: A - 4e⁴x

Q5: D - 10x

Q6: C - -4x sin (2x² + 1)

Q7: B - 8x

Q8: A - 6x

Q9: D - cos x

Q10: C - 3