18 Lecture - MTH101

Important Mcqs

What is the chain rule used for in calculus?

A) Integration

B) Derivatives

C) Limits

D) Sequences

Solution: B

Which of the following functions cannot be differentiated using the chain rule?

A) f(x) = sin(x^2)

B) f(x) = e^x + ln(x)

C) f(x) = cos(3x)

D) f(x) = x^2 + x + 1

Solution: D

What is the derivative of f(x) = sin(2x) using the chain rule?

A) 2cos(2x)

B) 2sin(2x)

C) 4cos(2x)

D) 4sin(2x)

Solution: B

What is the derivative of f(x) = e^(3x+2) using the chain rule?

A) 3e^(3x+2)

B) e^(3x+2)

C) 3e^(3x)

D) 2e^(3x+2)

Solution: A

What is the chain rule formula?

A) f'(x) = lim (h->0) (f(x+h)-f(x))/h

B) f(x) = ? g'(x)dx

C) (f(g(x)))' = f'(x)g'(x)

D) (f(g(x)))' = f'(g(x))g'(x)

Solution: D

What is an example of a composite function?

A) f(x) = x^2

B) f(x) = 3x + 4

C) f(x) = sin(x)

D) f(x) = sin(x^2)

Solution: D

Which of the following is the correct order for applying the chain rule?

A) Differentiate the inner function, then the outer function

B) Differentiate the outer function, then the inner function

C) Multiply the inner and outer functions, then differentiate

D) There is no specific order

Solution: B

What is the derivative of f(x) = ln(cos(x)) using the chain rule?

A) -tan(x)

B) -cot(x)

C) -sec(x)

D) -csc(x)

Solution: -tan(x)

Can the chain rule be applied to a function composed of more than two functions?

A) Yes

B) No

Solution: A

Which of the following is a way to remember the chain rule?

A) Outside inside

B) Inside outside

C) Middle first

D) There is no way to remember it

Solution: A