

16 Lecture - MTH101

Important Subjective

What is the power rule of differentiation?

Answer: The power rule states that the derivative of a function of the form $f(x) = x^n$ is given by $f'(x) = nx^{(n-1)}$.

How is the product rule used to find the derivative of a product of two functions?

Answer: The product rule states that if $f(x)$ and $g(x)$ are two functions, then the derivative of their product is given by the formula $f'(x)g(x) + f(x)g'(x)$.

What is the chain rule used for in differentiation?

Answer: The chain rule is used to find the derivative of a composite function.

How is the quotient rule used to find the derivative of a quotient of two functions?

Answer: The quotient rule states that if $f(x)$ and $g(x)$ are two functions, then the derivative of their quotient $f(x)/g(x)$ is given by the formula $(f'(x)g(x) - f(x)g'(x))/(g(x))^2$.

How are trigonometric identities used to simplify the derivatives of trigonometric functions?

Answer: Trigonometric identities can be used to simplify the derivatives of trigonometric functions and make them easier to compute.

What is logarithmic differentiation used for?

Answer: Logarithmic differentiation is a technique used to find the derivative of a function that is difficult to differentiate using other methods.

How is implicit differentiation used to find the derivative of an implicitly defined function?

Answer: Implicit differentiation is used to find the derivative of a function that is defined implicitly by an equation.

What is the difference between explicit and implicit differentiation?

Answer: Explicit differentiation is used to find the derivative of a function that is defined explicitly in terms of its independent variable, while implicit differentiation is used to find the derivative of a function that is defined implicitly by an equation.

What is the derivative of a constant function?

Answer: The derivative of a constant function is 0.

What is the derivative of the natural logarithm function?

Answer: The derivative of the natural logarithm function $f(x) = \ln(x)$ is given by $f'(x) = 1/x$.