24 Lecture - MTH101

Important Mcqs

What is Newton's Method?

- a) A numerical method to find the area under a curve
- b) A numerical method to find the roots of a function
- c) A method to find the maximum value of a function
- d) A method to find the derivative of a function

Answer: b) A numerical method to find the roots of a function

How many endpoints does an interval have?

- a) One
- b) Two
- c) Three
- d) Four

Answer: b) Two

What is the significance of Rolle's Theorem?

- a) It is used to find the area under a curve
- b) It is used to find the maximum or minimum value of a function
- c) It is used to find the roots of a function
- d) It is used to prove the existence of a point where the derivative of a function is zero

Answer: d) It is used to prove the existence of a point where the derivative of a function is zero

What is the Mean Value Theorem?

a) A theorem that states that the derivative of a function is equal to the average rate of change of the function over an interval

- b) A theorem that states that the integral of a function is equal to the average value of the function over an interval
- c) A theorem that states that the maximum or minimum value of a function occurs at a point where the derivative of the function is zero
- d) A theorem that states that the area under a curve is equal to the antiderivative of the function

Answer: a) A theorem that states that the derivative of a function is equal to the average rate of change of the function over an interval

Which theorem is an extension of Rolle's Theorem?

- a) Mean Value Theorem
- b) Intermediate Value Theorem
- c) Fundamental Theorem of Calculus
- d) Power Rule

Answer: a) Mean Value Theorem

What is the relationship between Newton's Method and the roots of a function?

- a) Newton's Method is used to find the maximum value of a function
- b) Newton's Method is used to find the minimum value of a function
- c) Newton's Method is used to find the roots of a function
- d) Newton's Method is used to find the slope of a tangent line to a function

Answer: c) Newton's Method is used to find the roots of a function

What is the formula for the Mean Value Theorem?

a)
$$f(b) - f(a) = (b - a)f'(c)$$

b)
$$f(b) - f(a) = (b - a)f(c)$$

c)
$$f'(b) - f'(a) = (b - a)f(c)$$

d)
$$f'(b) - f'(a) = (b - a)f''(c)$$

Answer: a) f(b) - f(a) = (b - a)f'(c)

How can Rolle's Theorem be used to find the maximum or minimum value of a function?

- a) By finding the value of c where the derivative of the function is zero
- b) By finding the value of c where the derivative of the function is undefined
- c) By finding the value of c where the function is zero
- d) By finding the value of c where the function is undefined

Answer: a) By finding the value of c where the derivative of the function is zero

What is the interval in the Mean Value Theorem?

- a) The difference between the maximum and minimum values of a function
- b) The difference between the endpoints of an interval
- c) The slope of the tangent line to a function
- d) The antiderivative of a