## 23 Lecture - MTH101

## Important Mcqs

## Which of the following is true about the maximum or minimum value of a function?

A) It always occurs at a critical point of the function
B) It always occurs at the endpoints of the interval
C) It can occur at either a critical point or an endpoint of the interval
D) It can occur anywhere on the function

Answer: C) It can occur at either a critical point or an endpoint of the interval

How can we determine whether a critical point corresponds to a maximum or minimum value of a function?
A) By evaluating the function at the critical point
B) By taking the derivative of the function at the critical point
C) By taking the second derivative of the function at the critical point
D) By using the intermediate value theorem

Answer: C) By taking the second derivative of the function at the critical point

## What is the absolute maximum of a function?

A) The highest point of the function over its entire domain
B) The highest point of the function within a given interval
C) The lowest point of the function over its entire domain
D) The lowest point of the function within a given interval

Answer: A) The highest point of the function over its entire domain

## What is the absolute minimum of a function?

A) The highest point of the function over its entire domain
B) The highest point of the function within a given interval
C) The lowest point of the function over its entire domain
D) The lowest point of the function within a given interval

Answer: C) The lowest point of the function over its entire domain

## What is an inflection point of a function?

A) A point where the derivative of the function is zero
B) A point where the second derivative of the function is zero
C) A point where the function changes concavity
D) A point where the function changes direction

Answer: C) A point where the function changes concavity

Which of the following is not a step in solving an optimization problem?
A) Taking the derivative of the function
B) Setting the derivative equal to zero or undefined
C) Checking the endpoints of the interval
D) Evaluating the function at the critical points

Answer: D) Evaluating the function at the critical points

## What is a constraint in an optimization problem?

A) A condition that must be satisfied by the function
B) A condition that must be satisfied by the derivative of the function
C) A condition that must be satisfied by the second derivative of the function
D) A condition that must be satisfied by the endpoints of the interval

Answer: A) A condition that must be satisfied by the function

Which of the following is not true about the maximum or minimum value of a function over a closed interval?
A) It may occur at the endpoints of the interval
B) It may occur at the critical points of the function
C) It may occur at points where the derivative is undefined
D) It may occur at points where the function is not continuous

Answer: D) It may occur at points where the function is not continuous

## What is the first derivative test used for?

A) To determine whether a critical point corresponds to a maximum or minimum of a function
B) To determine whether a function is increasing or decreasing
C) To determine whether a function is concave up or concave down
D) To determine whether a function has an inflection point

Answer: B) To determine whether a function is increasing or decreasing

Which of the following is true about the second derivative test?
A) It is used to determine whether a function is increasing or decreasing
B) It is used to

