

# 21 Lecture - MTH101

## Important Mcqs

**What does the first derivative of a function represent?**

- a) The slope of the tangent line
- b) The curvature of the function
- c) The area under the curve
- d) None of the above

**Answer: a) The slope of the tangent line**

**What is the fundamental theorem of calculus?**

- a) Differentiation and integration are inverse operations.
- b) The derivative of an integral function is equal to the original function.
- c) The area under a curve can be found by integrating the function.
- d) All of the above

**Answer: d) All of the above**

**How is differentiation used in optimization problems?**

- a) To find the maximum or minimum value of a function
- b) To find the area under a curve
- c) To find the derivative of a function
- d) None of the above

**Answer: a) To find the maximum or minimum value of a function**

**What is the second derivative of a function?**

- a) The slope of the tangent line
- b) The curvature of the function

- c) The area under the curve
- d) None of the above

**Answer: b) The curvature of the function**

**What is the method of Lagrange multipliers used for?**

- a) To solve optimization problems with constraints
- b) To find the derivative of a function
- c) To find the area under a curve
- d) None of the above

**Answer: a) To solve optimization problems with constraints**

**How is differentiation used in physics?**

- a) To find the area under a curve
- b) To find the maximum or minimum value of a function
- c) To study motion and velocity
- d) None of the above

**Answer: c) To study motion and velocity**

**What is the complex derivative?**

- a) The derivative of a complex function
- b) The derivative of a real function
- c) The area under a complex curve
- d) None of the above

**Answer: a) The derivative of a complex function**

**What is the indefinite integral?**

- a) The derivative of an integral function
- b) The integral of a derivative function
- c) The area under a curve

d) None of the above

**Answer: b) The integral of a derivative function**

**How is differentiation used in economics?**

a) To study supply and demand curves

b) To maximize profits

c) To study the rate of change of a variable

d) All of the above

**Answer: d) All of the above**

**What is the derivative of a constant?**

a) Zero

b) One

c) The constant itself

d) None of the above

**Answer: a) Zero**