

# 29 Lecture - MTH101

## Important Mcqs

**What is the definition of a definite integral?**

- A. A limit of a Riemann sum
- B. An antiderivative of a function
- C. A sum of infinitely small rectangles
- D. A limit of a derivative

**Answer: A**

**What does the definite integral represent?**

- A. The rate of change of a function
- B. The area under a curve between two points
- C. The slope of a tangent line
- D. The limit of a function

**Answer: B**

**What is the notation used for the definite integral?**

- A.  $\int_a^b f(x) dx$
- B.  $f'(x)$
- C.  $\lim_{x \rightarrow a} f(x)$
- D.  $f(x)$

**Answer: A**

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

- A. The limit of a Riemann sum
- B. The derivative of a function

- C. The area under a curve
- D. The relationship between derivatives and integrals

**Answer: D**

**What is the formula for the definite integral of a function  $f(x)$  between  $a$  and  $b$ ?**

- A.  $\int_a^b f(x) dx = f(b) - f(a)$
- B.  $\int_a^b f(x) dx = f(a) - f(b)$
- C.  $\int_a^b f(x) dx = f(a) + f(b)$
- D.  $\int_a^b f(x) dx = 2(f(b) - f(a))$

**Answer: A**

**What is the Riemann sum?**

- A. A numerical method for evaluating the definite integral
- B. A method for finding the derivative of a function
- C. A method for finding the antiderivative of a function
- D. A method for approximating the area under a curve using rectangles

**Answer: D**

**What is numerical integration?**

- A. A method for finding the derivative of a function
- B. A method for finding the antiderivative of a function
- C. A method for approximating the area under a curve using rectangles
- D. A method for evaluating the definite integral using exact formulas

**Answer: C**

**What is the trapezoidal rule?**

- A. A method for approximating the area under a curve using trapezoids
- B. A method for approximating the area under a curve using rectangles
- C. A method for evaluating the definite integral using exact formulas

D. A method for finding the derivative of a function

**Answer: A**

**What are some real-world applications of the definite integral?**

A. Calculating the area of a circle

B. Calculating the volume of a sphere

C. Calculating the present value of future cash flows

D. Calculating the velocity of an object

**Answer: C**

**What is the relationship between the derivative and the definite integral?**

A. The derivative is the inverse of the definite integral

B. The derivative represents the area under the curve

C. The definite integral represents the rate of change of a function

D. The derivative and definite integral are inverse operations

**Answer: D**