# 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. ?f(x)dx
- B. f'(x)
- C.  $\lim x?a f(x)$
- 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.  $a^bf(x)dx = f(b) f(a)$
- B.  $?a^bf(x)dx = f(a) f(b)$
- C.  $?a^bf(x)dx = f(a) + f(b)$
- D.  $?a^bf(x)dx = 2(f(b) f(a))$

#### 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