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. limx?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