

33 Lecture - MTH101

Important Subjective

What is the application of definite integral in finding the area under a curve?

Answer: The application of definite integral in finding the area under a curve is that it can be used to calculate the total area enclosed by a function and the x-axis over a specific interval.

How can definite integral be used in finding the average value of a function?

Answer: Definite integral can be used in finding the average value of a function by dividing the integral of the function over a given interval by the length of the interval.

Explain the use of definite integral in calculating work done by a variable force.

Answer: The use of definite integral in calculating work done by a variable force is that it can be used to determine the work done by a force that varies in magnitude and direction over a given distance.

What is the application of definite integral in calculating the center of mass of an object?

Answer: The application of definite integral in calculating the center of mass of an object is that it can be used to determine the coordinates of the point at which the object balances or the point at which the object's mass is evenly distributed.

Explain the use of definite integral in calculating the volume of a solid of revolution.

Answer: The use of definite integral in calculating the volume of a solid of revolution is that it can be used to sum the volume of an infinite number of infinitesimal slices of the solid generated by rotating a function around a given axis.

How can a definite integral be used in finding the distance traveled by an object with variable velocity?

Answer: Definite integral can be used in finding the distance traveled by an object with variable velocity by integrating the velocity function over a given time interval.

Explain the use of definite integral in calculating the probability density function.

Answer: The use of definite integral in calculating the probability density function is that it can be used to determine the probability of a random variable falling within a certain range of values.

What is the application of definite integral in calculating the heat transfer in a system?

Answer: The application of definite integral in calculating the heat transfer in a system is that it can be used to sum the infinitesimal amounts of heat transferred in a system over a given time interval.

Explain the use of definite integral in finding the total charge of a system.

Answer: The use of definite integral in finding the total charge of a system is that it can be used to sum the infinitesimal charges of the system over a given time interval.

What is the application of definite integral in calculating the moment of inertia of an object?

Answer: The application of definite integral in calculating the moment of inertia of an object is that it can be used to sum the infinitesimal contributions of each point in the object to the overall moment of inertia.