

# 25 Lecture - MTH101

## Important Mcqs

### What is integration?

- a. The process of finding the derivative of a function.
- b. The process of finding the limit of a function.
- c. The process of finding the area under a curve between two points.
- d. The process of finding the slope of a tangent line.

**Solution: c. The process of finding the area under a curve between two points is called integration.**

### What is the difference between a definite and indefinite integral?

- a. A definite integral gives a function whose derivative is the original function.
- b. A definite integral gives a specific numerical value for the area under a curve between two points.
- c. A definite integral gives the slope of a tangent line to a curve at a specific point.
- d. A definite integral gives the limit of a function as  $x$  approaches a specific value.

**Solution: b. A definite integral gives a specific numerical value for the area under a curve between two points, while an indefinite integral gives a function whose derivative is the original function.**

### What is the method of cylindrical shells?

- a. A method for finding the area between two curves.
- b. A method for finding the arc length of a curve.
- c. A method for finding the volume of a solid formed by revolving a curve around an axis.
- d. A method for finding the limit of a function.

**Solution: c. The method of cylindrical shells is a method for finding the volume of a solid formed by revolving a curve around an axis.**

### What is an antiderivative?

- a. A function whose derivative is the original function.

- b. A function whose limit is the original function.
- c. A function whose slope is the original function.
- d. A function whose area under the curve is the original function.

**Solution: a. An antiderivative is a function whose derivative is the original function.**

#### **What is the constant of integration?**

- a. A value that is added to the antiderivative of a function.
- b. A value that is subtracted from the antiderivative of a function.
- c. A value that is multiplied by the antiderivative of a function.
- d. A value that is divided by the antiderivative of a function.

**Solution: a. The constant of integration is a value that is added to the antiderivative of a function.**

#### **How are integrals used in physics?**

- a. To find the area between two curves.
- b. To find the volume of a solid formed by revolving a curve around an axis.
- c. To find the work done by a force.
- d. To find the arc length of a curve.

**Solution: c. Integrals are used in physics to find the work done by a force.**

#### **How is the area between two curves found?**

- a. By finding the derivative of one curve.
- b. By finding the derivative of both curves.
- c. By integrating the difference between the two curves.
- d. By integrating the sum of the two curves.

**Solution: c. The area between two curves is found by integrating the difference between the two curves.**

#### **How is the arc length of a curve found?**

- a. By integrating the length of small segments of the curve.
- b. By differentiating the length of small segments of the curve.

c. By finding the area under the curve.

d. By finding the volume of a solid formed by revolving the curve around an axis.

**Solution: a. The arc length of a curve is found by integrating the length of small segments of the curve.**

**What is the relationship between integration and differentiation?**

a. Integration and differentiation are unrelated.

b. Integration is the inverse of differentiation.

**c. Integration is the same as differentiation.**

d. Integration is the