36 Lecture - MTH101

Important Mcqs

Which formula is used to calculate the length of a curve?

a) The area formula

b) The perimeter formula

c) The arc length formula

d) The tangent line formula

Solution: c) The arc length formula is used to calculate the length of a curve.

What is the arc length formula?

a) L = ?[a,b] ?(1 + (dy/dx)²) dx

b) L = ?[a,b] (dy/dx) dx

c) L = ?[a,b] ?(1 + (dx/dy)²) dy

d) L = ?[a,b] (dx/dy) dy

Solution: a) The arc length formula is L = ?[a,b] ?(1 + (dy/dx)²) dx.

Which of the following is a smooth curve?

a) A piecewise linear curve

b) A parabolic curve

c) A circle

d) A fractal curve

Solution: b) A parabolic curve is a smooth curve, as it has a continuous and differentiable derivative.

How do we find the length of a circle?

a) L = ?r²

b) L = 2?r

c) L = ?d

d) L = 2?d

Solution: b) The length of a circle is given by the formula L = 2?r.

How do we find the length of a straight line segment?

a) L = x? - x?

b) L = y? - y?

c) L = ?((x? - x?)² + (y? - y?)²)

d) L = (x? - x?) + (y? - y?)

Solution: c) The length of a straight line segment is given by the distance formula L = ?((x? - x?)² + (y? - y?)²).

Can we use the arc length formula for non-smooth curves?

a) Yes

b) No

Solution: a) Yes, we can use the arc length formula for non-smooth curves by dividing the curve into small sections and approximating its length using the formula for each section.

What is the length of the x-axis?

a) 0

b) 1

c) -1

d) ?

Solution: a) The length of the x-axis is 0, as it is a straight line with no width.

What is the length of the unit circle?

a) ?

b) 2?

c) 3?

d) 4?

Solution: b) The length of the unit circle is 2?, as it has a radius of 1.

How do we find the length of an ellipse?

a) Using a simple formula

b) Using numerical methods

c) Using the arc length formula

d) Using the Pythagorean theorem

Solution: b) The length of an ellipse cannot be found using a simple formula, but it can be approximated using numerical methods.

Can we use the Pythagorean theorem to find the length of a curve?

a) Yes

b) No

Solution: b) No, the Pythagorean theorem cannot be used to find the length of a curve, as it only applies to right triangles.