

# 37 Lecture - MTH101

## Important Mcqs

What is the formula for finding the area of a surface of revolution?

- A.  $A = 2 \int_a^b f(x) dx$
- B.  $A = 2 \int_a^b f(x) \sqrt{1 + (f'(x))^2} dx$
- C.  $A = \int_a^b f(x) dx$
- D.  $A = \int_a^b f(x) \sqrt{1 + (f'(x))^2} dx$

Answer: B

What is the axis of rotation in the context of the surface area of a surface of revolution?

- A. The line or axis about which the curve is being rotated to form a three-dimensional shape.
- B. The line or axis about which the curve is being translated to form a two-dimensional shape.
- C. The line or axis about which the curve is being reflected to form a three-dimensional shape.
- D. The line or axis about which the curve is being projected to form a two-dimensional shape.

Answer: A

Can the formula for the surface area of a surface of revolution be used to find the surface area of a sphere?

- A. Yes
- B. No

Answer: A

In which field of study is the surface area of a surface of revolution commonly used?

- A. Biology
- B. Chemistry
- C. Physics
- D. Mathematics

Answer: D

What is the relationship between the surface area of a surface of revolution and calculus?

- A. The formula for the surface area of a surface of revolution is derived from calculus.
- B. Calculus has no relation to the surface area of a surface of revolution.
- C. The formula for the surface area of a surface of revolution is derived from geometry.
- D. Calculus and geometry are equally important in the surface area of a surface of revolution.

Answer: A

What is the practical application of the surface area of a surface of revolution in physics?

- A. Calculating the surface area of a rocket.
- B. Calculating the surface area of a baseball.
- C. Calculating the surface area of a sphere.
- D. Calculating the surface area of a light bulb.

Answer: A

What is the formula for finding the area of a surface of revolution when revolving around the y-axis?

- A.  $A = 2\pi \int [a,b] x \sqrt{1 + (f'(x))^2} dx$
- B.  $A = 2\pi \int [a,b] y dx$
- C.  $A = 2\pi \int [a,b] y \sqrt{1 + (f'(x))^2} dx$
- D.  $A = 2\pi \int [a,b] x dx$

Answer: C

What is the area of a surface of revolution formed by rotating the line  $y = 2x$  around the x-axis between  $x = 0$  and  $x = 4$ ?

- A. 32?
- B. 16?
- C. 8?
- D. 4?

Answer: B

Which shape has the greater surface area of revolution when rotated around the x-axis:  $y = x$  or  $y = x^2$ ?

A.  $y = x$

B.  $y = x^2$

C. They have the same surface area of revolution.

D. It depends on the bounds of integration.

Answer: B

What is the relationship between the surface area of a surface of revolution and analytical geometry?

A. The formula for the surface area of a surface of revolution is derived from analytical geometry.

B. Analytical geometry has no relation to the surface area of a surface of revolution.

C. The formula for the surface area of a surface of