33 Lecture - MTH101

Important Mcqs

A cylindrical tank is filled with water to a height of 10 meters. The radius of the tank is 5 meters. What is the approximate volume of the water in the tank?

a. 785.4 m^3

b. 1570.8 m^3

c. 1963.5 m^3

d. 3141.6 m^3

Answer: b. 1570.8 m^3

What is the average value of the function f(x) = 3x^2 + 2x + 1 on the interval [0,1]?

a. 2

b. 3

c. 4

d. 5

Answer: c. 4

The region bounded by y = x^2 and y = x is rotated around the y-axis. What is the volume of the resulting solid?

a. 1/6?

b. 1/4?

c. 1/2?

d. 3/4?

Answer: b. 1/4?

A rectangular tank with a length of 4 meters and a width of 2 meters is being filled with water at a rate of 2 cubic meters per minute. How fast is the water level rising when the depth of the water is 3 meters?

a. 1/6 m/min

b. 1/3 m/min

c. 2/3 m/min

d. 1 m/min

Answer: c. 2/3 m/min

The region bounded by y = sin x, y = 0, x = 0, and x = ? is rotated around the x-axis. What is the volume of the resulting solid?

a. 2?

b. 2?/3

c. 4?/3

d. 8?/3

Answer: b. 2?/3

A wire of length 10 meters is bent into the shape of a rectangle. What is the maximum area of the rectangle?

a. 5 m^2

b. 10 m^2

c. 12.5 m^2

d. 25 m^2

Answer: c. 12.5 m^2

The region bounded by y = x^3, y = 0, x = 1, and x = 2 is rotated around the x-axis. What is the volume of the resulting solid?

a. 7/3?

b. 8/3?

c. 9/2?

d. 10/3?

Answer: b. 8/3?

A rectangular tank with a length of 6 meters and a width of 4 meters is being filled with water at a rate of 3 cubic meters per minute. How fast is the water level rising when the depth of the water is 2 meters?

a. 1/3 m/min

b. 1/2 m/min

c. 2/3 m/min

d. 1 m/min

Answer: d. 1 m/min

The region bounded by y = x^2, y = 2x, and x = 2 is rotated around the y-axis. What is the volume of the resulting solid?

a. 8?/15

b. 4?/3

c. 8?/3

d. 16?/15

Answer: a. 8?/15

A particle moves along a straight line such that its position at time