

Topic :-Applications of Intergrals

- The area bounded by the curves $y = |x|$ and $y = 4 - |x|$ is
a) 4 sq unit b) 16 sq unit c) 2 sq unit d) 8 sq unit
- The smaller area enclosed by the circle $x^2 + y^2 = 4$ and the line $x + y = 2$ is equal to
a) $2(\pi - 2)$ b) $\pi - 2$ c) $2\pi - 1$ d) $\pi - 1$
- The area bounded by the curve $y = \sec^2 x$, $y = 0$ and $|x| = \frac{\pi}{3}$ is
a) $\sqrt{3}$ sq unit b) $\sqrt{2}$ sq unit c) $2\sqrt{3}$ sq unit d) None of these
- The area bounded by the curve $x = 4 - y^2$ and the y -axis is
a) 16 sq units b) 32 sq units c) $\frac{32}{3}$ sq units d) $\frac{16}{3}$ sq units
- The area bounded by the curve $y = x|x|$, x -axis and the ordinates $x = 1$, $x = -1$ is given by
a) 0 b) $\frac{1}{3}$ c) $\frac{2}{3}$ d) None of these
- The area of the region bounded by $x^2 + y^2 - 2y - 3 = 0$ and $y = |x| + 1$, is
a) π b) 2π c) 4π d) $\pi/2$
- The area of the region (in square units) bounded by the curve $x^2 = 4y$, line $x = 2$ and x -axis, is
a) 1 b) $2/3$ c) $4/3$ d) $8/3$
- The area bounded by $x = 1$, $x = 2$, $xy = 1$ and x -axis is
a) $(\log 2)$ sq unit b) 2 sq unit c) 1 sq unit d) None of these
- The area of the region for which $0 < y < 3 - 2x - x^2$ and $x > 0$, is
a) $\int_1^3 (3 - 2x - x^2) dx$ b) $\int_0^3 (3 - 2x - x^2) dx$ c) $\int_0^1 (3 - 2x - x^2) dx$ d) $\int_{-1}^3 (3 - 2x - x^2) dx$
- Area bounded by parabola $y^2 = x$ and straight line $2y = x$, is
a) $4/3$ b) 1 c) $2/3$ d) $1/3$
- The area of the triangle formed by the positive x -axis and the normal and tangent to the circle $x^2 + y^2 = 4$ at $(1, \sqrt{3})$, is
a) $\sqrt{3}$ b) $1/\sqrt{3}$ c) $2\sqrt{3}$ d) $3\sqrt{3}$
- The line $x = \frac{\pi}{4}$ divides the area of the region bounded by $y = \sin x$, $y = \cos x$ and x -axis ($0 \leq x \leq \frac{\pi}{2}$) into two regions of areas A_1 and A_2 . Then $A_1:A_2$ equals
a) 4:1 b) 3:1 c) 2:1 d) 1:1

13. Area of the region bounded by the curve $y = \begin{cases} x^2, & x < 0 \\ x, & x \geq 0 \end{cases}$ and the line $y = 4$ is
- a) $\frac{10}{3}$ sq unit b) $\frac{20}{3}$ sq unit c) $\frac{40}{3}$ sq unit d) None of these
14. The area of the closed figure bounded by the curves $y = \cos x, y = 1 + \frac{2}{\pi}x$ and $x = \pi/2$, is
- a) $\frac{\pi + 4}{4}$ b) $\frac{3\pi - 4}{4}$ c) $\frac{3\pi}{4}$ d) $\frac{\pi}{4}$
15. The area enclosed between the curves $y = x$ and $y = 2x - x^2$ is (in square unit)
- a) $\frac{1}{2}$ b) $\frac{1}{6}$ c) $\frac{1}{3}$ d) $\frac{1}{4}$
16. If A_n be the area bounded by the curve $y = (\tan x)^n$ and the lines $x = 0, y = 0$ and $x = \pi/4$, then for $x > 2$
- a) $A_n + A_{n-2} = \frac{1}{n-1}$ b) $A_n + A_{n-2} < \frac{1}{n-1}$ c) $A_n - A_{n-2} = \frac{1}{n-1}$ d) None of these
17. The area cut off from a parabola by any double ordinate is k times the corresponding rectangle contained by that double ordinate and its distance from the vertex, then k is
- a) $\frac{2}{3}$ b) $\frac{1}{3}$ c) $\frac{3}{2}$ d) 3
18. The area enclosed between the curves $y^2 = x$ and $y = |x|$ is
- a) $\frac{2}{3}$ sq unit b) 1 sq unit c) $\frac{1}{6}$ sq unit d) $\frac{1}{3}$ sq unit
19. The area of the loop between the curve $y = a \sin x$ and x -axis is
- a) a b) $2a$ c) $3a$ d) $4a$
20. The area of the region bounded by $y^2 = x$ and $y = |x|$ is
- a) $\frac{1}{3}$ sq unit b) $\frac{1}{6}$ sq unit c) $\frac{2}{3}$ sq unit d) 1 sq unit