

Topic :-Applications of Intergrals

- The area of the region formed by $x^2 + y^2 - 6x - 4y + 12 \leq 0, y \leq x$ and $x \leq 5/2$ is
a) $\frac{\pi}{6} - \frac{\sqrt{3} + 1}{8}$ b) $\frac{\pi}{6} + \frac{\sqrt{3} + 1}{8}$ c) $\frac{\pi}{6} - \frac{\sqrt{3} - 1}{8}$ d) None of these
- Area bounded by the curve $y = \log_e x, x = 0, y \leq 0$ and x -axis is
a) 1 sq unit b) 1/2 sq unit c) 2 sq unit d) None of these
- Area bounded by the curves $y = |x - 1|, y = 0$ and $|x| = 2$, is
a) 4 b) 5 c) 3 d) 6
- The area included between the parabolas $y^2 = 4x$ and $x^2 = 4y$ is (in square units)
a) 4/3 b) 1/3 c) 16/3 d) 8/3
- The area of region bounded by the curves $y = |x - 1|$ and $y = 3 - |x|$ is
a) 2 sq units b) 3 sq units c) 4 sq units d) 6 sq units
- The area bounded by the curves $y = x^3, y = x^2$ and the ordinates $x = 1, x = 2$ is
a) $\frac{17}{12}$ b) $\frac{12}{13}$ c) $\frac{2}{7}$ d) $\frac{7}{2}$
- The area bounded by the graph $y = |[x - 3]|$, the x -axis and the lines $x = -2$ and $x = 3$ is ([.] denotes the greatest integer function)
a) 7 sq unit b) 15 sq unit c) 21 sq unit d) 28 sq unit
- Area bounded by the curve $y^2 = 16x$ and line $y = mx$ is $\frac{2}{3}$ then m is equal to
a) 3 b) 4 c) 1 d) 2
- The area enclosed by $y = 3x - 5, y = 0, x = 3$ and $x = 5$ is
a) 12 sq units b) 13 sq unit c) $13\frac{1}{2}$ sq unit d) 14 sq unit
- The area of the region bounded by the curves $y = |x - 2|, x = 1, x = 3$ and the x -axis is
a) 1 b) 2 c) 3 d) 4
- The area common to the circle $x^2 + y^2 = 64$ and the parabola $y^2 = 4x$ is
a) $\frac{16}{3}(4\pi + \sqrt{3})$ sq unit b) $\frac{16}{3}(8\pi - \sqrt{3})$ sq unit c) $\frac{16}{3}(4\pi - \sqrt{3})$ sq unit d) None of these
- The ratio of the areas between the curves $y = \cos x$ and $y = \cos 2x$ and x -axis from $x = 0$ to $x = \pi/3$ is
a) 1 : 2 b) 2 : 1 c) $\sqrt{3} : 1$ d) None of these

13. The slope of tangent to a curve $y = f(x)$ at $(x, f(x))$ is $2x + 1$. If the curve passes through the point $(1, 2)$, then the area of the region bounded by the curve, the x -axis and the line $x = 1$ is
 a) $\frac{5}{6}$ sq unit b) $\frac{6}{5}$ sq unit c) $\frac{1}{6}$ sq unit d) 6 sq unit
14. The area bounded by the curves $y = |x| - 1$ and $y = -|x| + 1$ is
 a) 1 sq unit b) 2 sq unit c) $2\sqrt{2}$ sq unit d) 4 sq unit
15. The area of smaller portion bounded by $|y| = -x + 1$ and $y^2 = 4x$ is
 a) 1 sq unit b) 2 sq unit c) 3 sq unit d) None of these
16. If A_1 is the area enclosed by the curve $xy = 1$, x -axis and the ordinates $x = 1, x = 2$; and A_2 is the area enclosed by the curve $xy = 1$, x -axis and the ordinates $x = 2, x = 4$, then
 a) $A_1 = 2 A_2$ b) $A_2 = 2 A_1$ c) $A_2 = 3 A_1$ d) $A_1 = A_2$
17. The area of the region bounded by the parabola $(y - 2)^2 = x - 1$, the tangent to the parabola at the point $(2, 3)$ and the x -axis is
 a) 6 sq units b) 9 sq units c) 12 sq units d) 3 sq units
18. The area of the region $\{(x, y): x^2 + y^2 \leq 1 \leq x + y\}$, is
 a) $\frac{\pi}{5}$ b) $\frac{\pi}{4}$ c) $\frac{\pi^2}{3}$ d) $\frac{\pi}{4} - \frac{1}{2}$
19. The length of the parabola $y^2 = 12x$ cut off by the latusrectum is
 a) $6[\sqrt{2} + \log(1 + \sqrt{2})]$ b) $3[\sqrt{2} + \log(1 + \sqrt{2})]$ c) $6[\sqrt{2} - \log(1 + \sqrt{2})]$ d) $3[\sqrt{2} - \log(1 + \sqrt{2})]$
20. The area bounded by $y = \sin^{-1} x = \frac{1}{\sqrt{2}}$ and x -axis is
 a) $\left(\frac{1}{\sqrt{2}} + 1\right)$ sq unit b) $\left(1 - \frac{1}{\sqrt{2}}\right)$ sq unit
 c) $\frac{\pi}{4\sqrt{2}}$ sq unit d) $\left(\frac{\pi}{4\sqrt{2}} + \frac{1}{\sqrt{2}} - 1\right)$ sq unit