DPP
DAILY PRACTICE PROBLEMS

Class : XIth   Subject : Maths
Date :   DPP No. :3

Topic :-Applications of Intergrals

1. The area of the smaller segment cut off from the circle $x^2 + y^2 = 9$ by $x = 1$ is

   a) $\frac{1}{2}(9 \sec^{-1} 3 - \sqrt{8})$ sq unit   b) $(9 \sec^{-1}(3) - \sqrt{8})$ sq unit

   c) $(\sqrt{8} - 9 \sec^{-1} 3)$ sq unit   d) None of these

2. The area of the region bounded by $1 - y^2 = |x|$ and $|x| + |y| = 1$ is

   a) 1/3 sq unit   b) 2/3 sq unit   c) 4/3 sq unit   d) 1 sq unit

3. The area between the parabola $y^2 = 4ax$ and the line $y = mx$ in square units is

   a) $\frac{5a^2}{3m}$ b) $\frac{8a^2}{3m^3}$ c) $\frac{7a^2}{4m^2}$ d) $\frac{3a^2}{5m}$

4. The area bounded by the curves $y = \sin x$ between the ordinates $x = 0, x = \pi$ and the x-axis, is

   a) 2 sq. units   b) 4 sq. units   c) 3 sq. units   d) 1 sq. units

5. The area bounded by $|x - 1| \le 2$ and $x^2 - y^2 = 1$, is

   a) $6\sqrt{2} + \frac{1}{2}\log|3 + 2\sqrt{2}|$ b) $6\sqrt{2} + \frac{1}{2}\log|3 - 2\sqrt{2}|$

   c) $6\sqrt{2} - \log|3 + 2\sqrt{2}|$ d) None of these

6. The area bounded by $y = \log x$, x-axis and ordinates $x = 1$, $x = 2$ is

   a) $\frac{1}{2}(\log 2)^2$ b) $\log(2/e)$ c) $\log(4/e)$ d) $\log 4$

7. The area bounded by $y = x^2 + 1$ and the tangents to it drawn from the origin, is

   a) 8/3 sq. units   b) 1/3 sq. units   c) 2/3 sq. units   d) None of these

8. The area bounded by the x-axis, the curve $y = f(x)$ and the lines $x = 1$ and $x = b$ is equal to ($\sqrt{(b^2 + 1)} - \sqrt{2}$) for all $b > 1$, then $f(x)$ is

   a) $\sqrt{(x - 1)}$ b) $\sqrt{(x + 1)}$ c) $\sqrt{(x^2 + 1)}$ d) $\frac{x}{\sqrt{(1 + x^2)}}$

9. The area enclosed between the curves $y = \sin^2 x$ and $y = \cos^2 x$ in the interval $0 \le x \le \pi$ is

   a) 2 sq unit   b) $\frac{1}{2}$ sq unit   c) 1 sq unit   d) None of these

10. The area bounded by $y = \sin^{-1} x$, $x = \frac{1}{\sqrt{2}}$ and x-axis is

   a) $\left(\frac{1}{\sqrt{2}} + 1\right)$ sq units   b) $\left(1 - \frac{1}{\sqrt{2}}\right)$ sq uints

c) $\dfrac{\pi}{4\sqrt{2}}$ sq units

d) $\left(\dfrac{\pi}{4\sqrt{2}} + \dfrac{1}{\sqrt{2}} - 1\right)$ sq units

11. The area between the curves $x = -2y^2$ and $x = 1 - 3y^2$, is
    a) 4/3
    b) 3/4
    c) 3/2
    d) 2/3

12. The area of the region bounded by $y = |x - 1|$ and $y = 3 - |x|$, is
    a) 2
    b) 3
    c) 4
    d) 1

13. The area bounded by $y = [x]$ and the two ordinates $x = 1$ and $x = 1.7$ is
    a) $\dfrac{17}{10}$
    b) 1
    c) $\dfrac{17}{5}$
    d) $\dfrac{7}{10}$

14. Line $x = 1$ divides A enclosed by circle $x^2 + y^2 = 16$ in two portions A_1 and $A_2 (A_1 > A_2)$, then $\dfrac{A_1}{A_2}$ is
    a) 4
    b) 3
    c) 2
    d) None of these

15. The area enclosed by the curve $\dfrac{x^2}{25} + \dfrac{y^2}{16} = 1$ is
    a) 10π sq unit
    b) 20π sq unit
    c) 5π sq unit
    d) 4π sq unit

16. The area of the figure bounded by the curve $|y| = 1 - x^2$ is
    a) 2/3
    b) 4/3
    c) 8/3
    d) $-5/3$

17. The area enclosed within the curve $|x| + |y| = 1$ is
    a) 1 sq unit
    b) $2\sqrt{2}$ sq units
    c) $\sqrt{2}$ sq units
    d) 2 sq units

18. The area bounded by the parabola $y^2 = 4ax$ and $x^2 = 4ay$, is
    a) $\dfrac{8a^3}{3}$
    b) $\dfrac{16a^2}{3}$
    c) $\dfrac{32a^2}{3}$
    d) $\dfrac{64a^2}{3}$

19. The area enclosed between the curves $y = ax^2$ and $x = ay^2 (a > 0)$ is 1 sq unit. Then value of a is
    a) $\dfrac{1}{\sqrt{3}}$
    b) $\dfrac{1}{2}$
    c) 1
    d) $\dfrac{1}{3}$

20. The area bounded by the curves $y = x^3$ and $y = x$ is
    a) 1/2 sq units
    b) 1/4 sq units
    c) 1/8 sq units
    d) 1/16 sq units