DPP
DAILY PRACTICE PROBLEMS

Class : XIth

Date :

Subject : Maths

DPP No. :1

Topic :-Applications of Intergrals

1. Area bounded by the curve $y = (x - 1)(x - 2)(x - 3)$ and x-axis lying between the ordinates $x = 0$ and $x = 3$ is equal to
    a) 9/4
    b) 11/4
    c) 11/2
    d) 7/4

2. The area of the region bounded by the curves $y = e^x, y = \log_e x$ and lines $x = 1, x = 2$ is
    a) $(e - 1)^2$
    b) $e^2 - e + 1$
    c) $e^2 - e + 1 - 2\log_e 2$
    d) $e^2 + e - 2\log_e 2$

3. The value of k for which the area of the figure bounded by the curve $y = 8 x^2 - x^5$, the straight line $x = 1$ and $x = k$ and the x-axis is equal to 16/3
    a) 2
    b) $\sqrt[3]{8 - \sqrt{17}}$
    c) 3
    d) -1

4. The area bounded by the curve $y = x$, x-axis and ordinates $x = -1$ to $x = 2$, is
    a) 0 sq unit
    b) 1/2 sq unit
    c) 3/2 sq unit
    d) 5/2 sq unit

5. The area (in square unit) of the region bounded by the curves $2x = y^2 - 1$ and $x = 0$ is
    a) $\dfrac{1}{3}$ sq unit
    b) $\dfrac{2}{3}$ sq unit
    c) 1 sq unit
    d) 2 sq units

6. The area bounded by the curve $y = 4x - x^2$ and the x-axis, is
    a) $\dfrac{30}{7}$ sq. units
    b) $\dfrac{31}{7}$ sq. units
    c) $\dfrac{32}{3}$ sq. units
    d) $\dfrac{34}{3}$ sq. units

7. The volume of the solid generated by revolving the region bounded by $y = x^2 + 1$ and $y = 2x + 1$ about x-axis is
    a) $\dfrac{104\pi}{15}$ cu units
    b) $\dfrac{42\pi}{15}$ cu units
    c) $\dfrac{52\pi}{15}$ cu units
    d) None of these

8. The area bounded by the curves $|x| + |y| \geq 1$ and $x^2 + y^2 \leq 1$ is
    a) 2 sq unit
    b) π sq unit
    c) $(\pi - 2)$ sq unit
    d) $(\pi + 2)$ sq unit

9. The area bounded by the curves
    $y = \cos x$ and $y = \sin x$ between the ordinance $x = 0$ and $x = \dfrac{3\pi}{2}$ is
    a) $(4\sqrt{2} - 2)$sq units
    b) $(4\sqrt{2} + 2)$sq units
    c) $(4\sqrt{2} - 1)$sq units
    d) $(4\sqrt{2} + 1)$sq units

10. Area bounded by the curves $y = \left[\dfrac{x^2}{64} + 2\right], y = x - 1$ and $x = 0$ above x-axis is ([.] denotes the greatest integer function)
    a) 2 sq unit
    b) 3 sq unit
    c) 4 sq unit
    d) None of these

11. The area bounded by the curve $y^2 = 8x$ and $x^2 = 8y$, is
    a) $\dfrac{16}{3}$ sq. units
    b) $\dfrac{3}{16}$ sq. units
    c) $\dfrac{14}{3}$ sq. units
    d) $\dfrac{3}{14}$ sq. units

12. The area enclosed between the curve $y = \log_e(x + e)$ and the coordinate axis is
    a) 4 sq units
    b) 3 sq units
    c) 2 sq units
    d) 1 sq unit

13. If area bounded by the curves $y^2 = 4 ax$ and $y = mx$ is $a^2/3$, then the value of m is
    a) 2
    b) -2
    c) 1/2
    d) 1

14. The area of the figure bounded by the curves $y = |x - 1|$ and $y = 3 - |x|$ is

a) 2   b) 3   c) 4   d) 1

15. The area bounded by the curves $y = \sqrt{5 - x^2}$ and $y = |x - 1|$ is

a) $\left(\dfrac{5\pi}{4} - 2\right)$ sq units   b) $\dfrac{(5\pi - 2)}{4}$ sq units   c) $\dfrac{(5\pi - 2)}{2}$ sq units   d) $\left(\dfrac{\pi}{2} - 5\right)$ sq units

16. Area bounded by the curve $x\,y^2 = a^2(a - x)$ and y-axis, is

a) $\pi a^2 / 2$ b) πa^2 c) $3\,\pi a^2$ d) $2\pi a^2$

17. The area of the ellipse $\dfrac{x^2}{a^2} + \dfrac{y^2}{b^2} = 1$, is

a) $\pi\,ab$ b) $\dfrac{\pi}{4}(a^2 + b^2)$ c) $\pi\,(a + b)$ d) $\pi\,a^2\,b^2$

18. The area bounded by the curve $y = x^6(\pi - x)^8$ is

a) $\dfrac{\pi^{15} \times 3! \times 4!}{15!}$ sq unit   b) $\dfrac{\pi^6 \times 6! \times 8!}{15!}$ sq unit   c) $\dfrac{\pi^{15} \times 6! \times 8!}{15!}$ sq unit   d) $\dfrac{\pi^8 \times 6! \times 8!}{15!}$ sq unit

19. The part of circle $x^2 + y^2 = 9$ in between $y = 0$ and $y = 2$ is revolved about y-axis. The volume of generating solid will be

a) $\dfrac{46}{3}\pi$ cu units   b) $12\,\pi$ cu jnits   c) $16\,\pi$ cu units   d) $28\,\pi$ cu units

20. The area of the region by curves $y = x \log x$ and $y = 2x - 2x^2$ is

a) $\dfrac{1}{2}$ sq units   b) $\dfrac{3}{12}$ sq units   c) $\dfrac{7}{12}$ sq units   d) None of these