

**CLASS-XII, SUBJECT-MATHEMATICS**  
**CHAPTER.APPLICATION OF INTEGRATION**  
**WORKSEET (BASIC)**

**(2 Marks Questions)**

1. Area bounded by the curve  $y = \sin x$  and the  $x$ -axis between  $x = 0$  and  $x = 2\pi$  is  
(A) 2 sq units (B) 0 sq units (C) 3 sq units (D) 4 sq units
2. The area enclosed by the circle  $x^2 + y^2 = 2$  is equal to  
(A)  $4\pi$  sq units (B)  $2\sqrt{2}\pi$  sq units (C)  $4\pi^2$  sq units (D)  $2\pi$  sq units
3. Area of the region bounded by the curve  $y = \sqrt{49 - x^2}$  and the  $x$ -axis is  
(A)  $\frac{49}{2}\pi$  sq units (B)  $98\pi$  sq units (C)  $49\pi$  sq units (D)  $240\pi$  sq units
4. Area of the region bounded by the curve  $x = 2y + 3$ , the  $y$ -axis and between  $y = -1$  and  $y = 1$  is  
(A) 4 sq units (B)  $\frac{3}{2}$  sq units (C) 6 sq units (D) 8 sq units
5. Area lying in the first quadrant and bounded by the circle  $x^2 + y^2 = 4$  and the lines  $x = 0$  and  $x = 2$  is  
(A)  $\pi$  (B)  $\frac{\pi}{2}$  (C)  $\frac{\pi}{3}$  (D)  $\frac{\pi}{4}$
6. Area of the region bounded by the curve  $y^2 = 4x$ ,  $y$ -axis and the line  $y = 3$  is  
(A) 2 (B)  $\frac{9}{4}$  (C)  $\frac{9}{3}$  (D)  $\frac{9}{2}$
7. Smaller area enclosed by the circle  $x^2 + y^2 = 4$  and the line  $x + y = 2$  is  
(A)  $2(\pi - 2)$  (B)  $\pi - 2$  (C)  $2\pi - 1$  (D)  $2(\pi + 2)$
8. Area lying between the curves  $y^2 = 4x$  and  $y = 2x$  is  
(A)  $\frac{3}{4}$  (B)  $\frac{1}{3}$  (C)  $\frac{1}{4}$  (D) None of these
9. Area bounded by the curve  $y = x^3$ , the  $x$ -axis and the ordinates  $x = -2$  and  $x = 1$  is  
(A)  $-9$  (B)  $\frac{-15}{4}$  (C)  $\frac{15}{4}$  (D)  $\frac{17}{4}$
10. The area of the circle  $x^2 + y^2 = 16$  exterior to the parabola  $y^2 = 6x$  is  
(A)  $\frac{4}{3}(4\pi - \sqrt{3})$  (B)  $\frac{4}{3}(4\pi + \sqrt{3})$  (C)  $\frac{4}{3}(8\pi - \sqrt{3})$  (D)  $\frac{4}{3}(8\pi + \sqrt{3})$
11. The area bounded by the  $y$ -axis,  $y = \cos x$  and  $y = \sin x$ , when  $0 \leq x \leq \frac{\pi}{2}$  is  
(A)  $2(\sqrt{2} - 1)$  (B)  $\sqrt{2} - 1$  (C)  $\sqrt{2} + 1$  (D)  $\sqrt{2}$
12. The area enclosed by the ellipse  $\frac{x^2}{25^2} + \frac{y^2}{16^2} = 1$  is equal to

- (A)  $20\pi$  sq units (B)  $20\pi^2$  sq units (C)  $16\pi^2$  sq units (D)  $25\pi$  sq units
13. The area of the region bounded by the circle  $x^2 + y^2 = 1$  is  
 (A)  $2\pi$  sq units (B)  $\pi$  sq units (C)  $3\pi$  sq units (D)  $4\pi$  sq units
14. The area of the region bounded by the curve  $y = x + 1$  and the lines  $x = 2$  and  $x = 3$  is  
 (A)  $\frac{7}{2}$  sq units (B)  $\frac{9}{2}$  sq units (C)  $\frac{11}{2}$  sq units (D)  $\frac{13}{2}$  sq units
15. The area of the region bounded by the curve  $x = 2y + 3$  and the y lines  $y = 1$  and  $y = -1$  is  
 (A) 4 sq units (B)  $\frac{3}{2}$  sq units (C) 6 sq units (D) 8 sq units

**Fill in the blanks:**

16. The area of the region bounded by the curve  $x = y^2$ , y-axis and the line  $y = 3$  and  $y = 4$  is \_\_\_\_\_.
17. The area of the region bounded by the curve  $y = x^2 + x$ , x-axis and the line  $x = 2$  and  $x = 5$  is equal to \_\_\_\_\_.
18. The area of the region bounded by the curve  $y = \frac{1}{x}$ , the x-axis and between  $x = 1$  to  $x = 6$  is \_\_\_\_\_.
19. The area enclosed by the curve  $y = x^2$  and  $y = 8$  is \_\_\_\_\_.
20. The area of the region bounded by the curve  $y^2 = x$ , the y-axis and between  $y = 2$  and  $y = 4$  is \_\_\_\_\_ sq units.

**(2 Marks Questions)**

21. Find the area of the curve  $y = \sin x$  between 0 and  $\pi$ .
22. Find the area of the region bounded by the parabola  $y^2 = 2x$  and the straight line  $x - y = 4$ .
23. Find the area of the region bounded by the curve  $y = \frac{41}{x}$ , x-axis and between  $x = 1$ ,  $x = 4$ .
24. Write an expression for finding the area bounded by the curves  $y = \sin x$  and  $y = \cos x$ , between  $x = 0$ ,  $x = \frac{\pi}{2}$  and the x-axis.
25. Find the area of the region bounded by the curve  $y = x^2$  and the line  $y = 4$ .