

MATHS

Assignment 1.0

Applications of the Integrals

By

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1. Draw a rough sketch and find the area of the region bounded by the two parabolas $y^2 = 4x$ and $x^2 = 4y$ by using method of integration.
2. Draw a rough sketch and find the area of the region bounded by the two parabolas $y^2 = 8x$ and $y^2 = 8x$ by using method of integration.
3. Make a rough sketch of the region given below and find its area using method of integration. $\{(x, y) : y = 2x + 3, y = x^2 + 3\}$
4. Sketch the region common to the circle $x^2 + y^2 = 16$ and the parabola $x^2 = 6y$. Also find the area of the region.
5. Sketch the region common to the circle $x^2 + y^2 = 25$ and the parabola $y^2 = 8x$. Also find the area of the region.
6. Sketch the region lying in the first quadrant and bounded by $y = 9x^2, x = 0, y = 1$ and $y = 4$. Find the area of the region.
7. Draw a rough sketch of the region enclosed between the circles $x^2 + y^2 = 4$ and $(x - 2)^2 + y^2 = 4$. Using integration find the area of the enclosed region.
8. Using integration, find the area of triangle ABC where A is (2, 3), B is (4, 7) and C is (6, 2).
9. Using integration, find the area of triangle PQR where P is (2, 1), Q is (3, 4) and R is (5, 2).
10. Using integration, find the area of the region, given : $\{(x, y) : 0 \leq y \leq x^2 + 1; 0 \leq y \leq x + 1, 0 \leq x \leq 2\}$
11. Find the area of the region given by $\{(x, y) : x^2 \leq y \leq |x|\}$
12. Using integration, find the area of the region bounded by the line $y + x - 1 = 0$, x-axis and the lines $x = -2$ and $x = 3$.
13. Find the area of the region lying between the parabolas $y^2 = 4ax$ and $x^2 = 4ay$, where $a > 0$.
14. Using integration, find the area of the triangle ABC, whose vertices have coordinates : A(2, 0), B(4, 5) and C(6, 3).
15. Using integration, find the area of the triangle ABC, whose vertices have coordinates : A(3, 0), B(4, 6) and C(6, 2).
16. Find the area of the following region : $\{(x, y) : y^2 \leq 4x, 4x^2 + 4y^2 \leq 9\}$.
17. Using integration find the area of triangle ABC, whose vertices are A(3, 0), B(4, 5) and C(5, 1).
18. Using integration, find the area of the circle $x^2 + y^2 = 16$, which is exterior to the parabola $y^2 = 6x$.
19. Find the area bounded by the circles $x^2 + y^2 = 16$ and the line $y = x$ in the first quadrant.

20. Find the area of the region bounded by the curve $x^2 = 4y$ and the line $x = 4y - 2$.
21. Using integration, find the area of the region in the first quadrant enclosed by the x-axis, and the line $y = x$ and circle $x^2 + y^2 = 32$.
22. Using integration, find the area of the region in the first quadrant enclosed by the x-axis, and the line $y = x$ and circle $x^2 + y^2 = 8$.
23. Find the area of the region bounded by the curve $y = x^2$ and the line $y = x$.
24. Find the area enclosed by the parabola $y = x^2$ and the line $y = x$ and the x-axis.
25. Using integration, find the area of the smaller region bounded by the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ and the straight line $\frac{x}{a} + \frac{y}{b} = 1$.
26. Using integration, find the area of the smaller region bounded by the curve $\frac{x^2}{16} + \frac{y^2}{9} = 1$ and the straight line $\frac{x}{4} + \frac{y}{3} = 1$.
27. Using integration, find the area of the region in the first quadrant enclosed by the x-axis, the lines $x = \sqrt{3}y$ and the circle $x^2 + y^2 = 4$.
28. Using integration, find the area of the region enclosed between two circles $x^2 + y^2 = 1$ and $(x-1)^2 + y^2 = 1$.
29. Using integration, find the area of the triangle ABC, the coordinates of whose vertices are A(2, 0), B(4, 5) and C(6, 3).
30. Find the area of the region bounded by the curve $y^2 = 4x$, $x = 1$, $x = 4$ and the x-axis in the first quadrant.
31. Find the area of the region bounded by the curves $y = x$ and $x = y^2$.
32. Using integration, find the area of the triangle whose vertices are A(0, 5), B(-1, 1) and C(3, 2).
33. Find the area of that part of the circle $x^2 + y^2 = 16$ which is exterior to the parabola $y^2 = 6x$.
34. Using integration, find the area bounded by the lines $x + 2y = 2$, $y - x = 1$ and $2x + y = 7$.
35. Find the area bounded by the curves : $(x-1)^2 + y^2 = 1$ and $x^2 + y^2 = 1$.
36. Using integration find the area of the region bounded by the parabola $y^2 = 4x$ and the circle $4x^2 + 4y^2 = 9$.
37. Using integration, find the area of the region enclosed between the circles $x^2 + y^2 = 4$ and $(x-2)^2 + y^2 = 4$.
38. Using integration, find the area lying above x-axis and included between the circle $x^2 + y^2 = 8x$ and the parabola $y^2 = 4x$.

Note : if any mistake on this, kindly inform on the mail id : bkna1207@gmail.com

Your Observation! Our Correction !!