MATHS

BOOKS - JEEVITH PUBLICATIONS MATHS (KANNADA ENGLISH)

APPLICATIONS OF INTEGRALS

Three Marks Questions With Answers

1. Find the area of the region bounded by the curve $y^2 = x$ and the lines $x = 4, x = 9$ and

the x-axis in the first quadrant.

2. Find the area of the region bounded by the curve $y^2 = x$ and the lines $x = 1$, $x = 4$ and the X-axis.

3. Find the area of the region bounded by $y^2 = 9x$, $x = 2$, $x = 4$ and the X-axis in the

first quadrant.

4. Find the area of the region bounded by $x^2 = 4y, y = 2, y = 4$ and the Y-axis in the first quadrant.

5. Find the area of the region bounded by the parabola $y = x^2$ and $y = |x|$.

6. Find the area of the region bounded by the curve $y^2 = 4x$ and the line x=3.

7. Find area lying between the curves $y^2 = 4x$ and $y = 2x$ is

8. Find the area of the region bounded by the curve $y = x^2$ and the line $y = 4$.

Five Marks Questions With Answers

1. Find the area of the region bounded by the ellipse $\dfrac{x^2}{16} + \dfrac{y^2}{9} = 1$.

2. Find the area of the region bounded by the ellipse $\dfrac{x^2}{4} + \dfrac{y^2}{9} = 1$.

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3. Find the area of the region in the first quadrant enclosed by X-axis and $x = \sqrt{3}y$ and the circle $x^2 + y^2 = 4$.

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4. Find the area of the smaller part of the circle $x^2 + y^2 = a^2$ cut-off by the line $x = \dfrac{a}{\sqrt{2}}$.

5. The are between $x = y^2$ and x=4 is divided into two equal parts by the line $x = a$, find the value of a.

6. Find the area bounded by the curve $x^2 = 4y$ and the line $x = 4y - 2$.

7. Find the area of the circle $4x^2 + 4y^2 = 9$ which is interior to the parabola $x^2 = 4y$.

8. Find the area bounded by the curve $(x - 1)^2 + y^2 = 1$ and $x^2 + y^2 = 1$.

9. Find the area of the region bounded by the curves $y = x^2 + 2, y = x, x = 0$ and $x = 3$.

10. Using integration, find the area of region bounded by the triangle whose vertices are $(-1, 0), (1, 3)$ and $(3, 2)$.

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11. Using integration find the area of the triangular region whose sides have the equations $Y = 2x + 1, y = 3x + 1$ and $x = 4$.

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12. Using the method of integration, find the smaller area enclosed by the circle $x^2 + y^2 = 4$ and the line x+y=2.

13. Find the area of the region enclosed by the parabola $x^2 = y$, the line $y = x + 2$ and the X-axis.

14. Using method of integration find the area bounded by the curve $|x| + |y| = 1$.

15. Find the area of the region bounded by the parabola $y = x^2$ and $y = |x|$.

16. Using the method of integration find the area of the triangle ABC, coordinates of whose vertices are $A(2, 0)$, $B(4, 5)$ and $C(6, 3)$.

17. Find the area of the region $y^2 = 4x$ and $4x^2 + 4y^2 = 9$.

Try Yourself

1. Using integration, find the area of region bounded by the triangle whose vertices are $(-1, 0), (1, 3)$ and $(3, 2)$.

2. Find the area of the circle $4x^2 + 4y^2 = 9$ which is interior to the parabola $x^2 = 4y$.

3. Find the area of ellipse $\dfrac{x^2}{a^2} + \dfrac{y^2}{b^2} - 1, (a > b)$ by the method of integration and hence find the area of the ellipse $\dfrac{x^2}{16} + \dfrac{y^2}{19} = 1.$

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4. Find the area of the region in the first quadrant method enclosed by the x-axis, the line y=x and the circle $x^2 + y^2 = 32.$

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5. Find the area bounded by the ellipse $\dfrac{x^2}{a^2} + \dfrac{y^2}{b^2} = 1$ and the ordinates x=0 and x=ae, where $b^2 = a^2\left(1 - e^2\right)$ and $e < 1$.

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