

RAVI MATHS TUITION CENTER, CHENNAI-82. WHATSAPP - 8056206308

Application Of Integrals

12th Standard

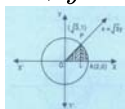
Maths

$$5 \times 2 = 10$$

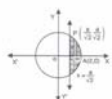
- 1) Find the area of the region by the curve $y = \frac{1}{x}$, x-axis and between $x = 1$, $x = 4$.
- 2) On sketching the graph of $y = |x - 2|$ and evaluating $\int_{-1}^3 |x - 2| dx$, what does $\int_{-1}^3 |x - 2| dx$ represent on the graph?
- 3) Sketch the region lying in the first quadrant and bounded by $y = 9x^2$, $x = 0$, $y = 1$ and $y = 4$. Find the area of region using integration.
- 4) Draw a rough sketch of the curve $y = \sqrt{x - 1}$ the interval $[1, 5]$. Find the area under the curve and the lines $x = 1$ and $x = 5$.
- 5) Find the area of the minor segment of the circle $x^2 + y^2 = a^2$ cut-off by the line $x = \frac{a}{2}$

$$10 \times 3 = 30$$

- 6) Using integration find the area of the region in the first quadrant enclosed by the x-axis, the line $y = x$ and the circle $x^2 + y^2 = 32$.
- 7) Find the area bounded by the curve $y = \cos x$ between $x = 0$ and $x = 2\pi$
- 8) Find the area of the region bounded by the curve $y^2 = x$ and the lines $x = 1$, $x = 4$ and the x-axis.
- 9) Find the area of the region bounded by the ellipse $\frac{x^2}{16} + \frac{y^2}{9} = 1$
- 10) Find the area of the region in the first quadrant enclosed by x-axis and $x = \sqrt{3}y$ by the circle $x^2 + y^2 = 4$.



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



- 12) Using integration find the area of the following region:

$$\left\{ (x, y) : \frac{x^2}{9} + \frac{y^2}{4} \leq \frac{x}{3} + \frac{y}{2} \right\}$$

- 13) Sketch the graph of $y = |x + 3|$ and evaluate the area under the curve $y = |x + 3|$ above x-axis and between $x = -6$ to $x = 0$.
- 14) Find the area of the region bounded by the line $y = 3x + 2$, the x-axis and ordinates at $x = -1$ and $x = 1$.
- 15) Using integration, find the area of the quadrant of the circle $x^2 + y^2 = 4$

$$4 \times 5 = 20$$

- 16) Find the area of the region bounded by the line $y = 3x + 2$, the x-axis and the ordinates $x = -1$ and $x = 1$.
- 17) Find the area of the region in the first quadrant enclosed by the y-axis, the line $y = x$ and the circle $x^2 + y^2 = 32$, using integration.
- 18) Using integration, find the area of the region bounded by the curves: $y = |x + 1| + 1$, $x = -3$, $x = 3$, $y = 0$.
- 19) Using integration find the area of the region given by $\{(x, y) : (x^2 \leq y \leq |x|)\}$.
