

**APPLICATIONS OF INTEGRALS**

**CM120801**

1. Using integration, find the area of the region bounded by the triangle ABC whose vertices are A(-1,1), B(0,5) and C(3,2).
2. Using integration, find the area of the triangular region, the equations of whose sides are  $y = 2x + 1$ ,  $y = 3x + 1$  and  $x = 4$ .
3. Find the area of the region bounded by the curves  $x^2 + y^2 = 4$ ,  $y = \sqrt{3}x$  and x-axis in the first quadrant.
4. Find the area of the region bounded by  $x^2 + 9y^2 = 36$ , Using integration.
5. Find the area common to circle  $x^2 + y^2 = 16a^2$  and parabola  $y^2 = 6ax$ .
6. Find the area of the region bounded by the curve  $y = \sqrt{1 - x^2}$ , line  $y = x$  and positive x-axis.
7. Find the area of the region bounded by the region in the first quadrant enclosed by x-axis, the line  $x = \sqrt{3}y$  and the circle  $x^2 + y^2 = 4$ .
8. Using integration, Find the area of the region bounded by curves  $\{(x, y); \frac{x^2}{9} + \frac{y^2}{4} \leq 1 \leq \frac{x}{3} + \frac{y}{3}\}$ .
9. Using integration, Find the area of the region bounded by curves  $\{(x, y); |x - 1| \leq y \leq \sqrt{5 - x^2}\}$ .
10. Find the area of the region  $\{(x, y): 0 \leq y \leq x^2 + 1, 0 \leq y \leq x + 1, 0 \leq x \leq 2\}$ .

