**CBSE Class 12 Mathematics**

**Chapter-8**

**Application of Integrals**

- **Elementary area**: The area is called elementary area which is located at any arbitary position within the region which is specified by some value of $x$ between $a$ and $b$.

- The area of the region bounded by the curve y = f (x), x-axis and the lines x = a and x = b (b > a) is given by the formula: $Area = \int_a^b y\,dx = \int_a^b f(x)\,dx$.

- The area of the region bounded by the curve $x = \theta(y)$, y-axis and the lines y = c, y = d is given by the formula: $Area = \int_c^b x\,dy = \int_c^d \theta(y)\,dy$

- The area of the region enclosed between two curves y = f (x), y = g (x) and the lines x = a, x = b is given by the formula, Area = $\int_a^b [f(x) - g(x)]\,dx$, where $f(x) \geq g(x)$ in [a, b].

- If $f(x) \geq g(x)$ in [a, c] and $f(x) \leq g(x)$ in [c, b], $a < c < b$, then we write the areas as : Area = $\int_a^b [f(x) - g(x)]\,dx + \int_c^b [g(x) - f(x)]\,dx$.