1) Let \( f \) be a function defined on the closed interval \( I = [a, b] \).

2) Subdivide \( I \) using the partition \( P = a = x_0 < x_1 < x_2 < \ldots < x_{n-1} < x_n = b \) into \( n \) subintervals each of length \( \Delta x_1 = x_1 - x_0, \Delta x_2 = x_2 - x_1, \Delta x_3 = x_3 - x_2, \ldots, \Delta x_n = x_n - x_{n-1} \).

3) Let \( k \) be a positive integer such that \( 1 \leq k \leq n \). Choose exactly \( n \) arbitrary points \( x_1^*, x_2^*, \ldots, x_{n-1}^*, x_n^* \) on \( I \) such that \( x_k^* \) belongs to the \( k \)th subinterval \([x_{k-1}, x_k]\).

4) Form the Riemann Sum \( \sum_{k=1}^{n} f(x_k^*) \Delta x_k \).

5) Let \( \max \Delta x_k \) be the largest of the subinterval widths \( \Delta x_1, \Delta x_2, \Delta x_3, \ldots, \Delta x_{n-1}, \Delta x_n \). \( \max \Delta x_k \) is also denoted as \( \|\Delta x_k\| \) and is called the norm of the partition or mesh size.

6) Let \( \|\Delta x_k\| \to 0 \) in the Riemann Sum in step 4, thus forming the limit \( \lim_{\|\Delta x_k\|\to 0} \sum_{k=1}^{n} f(x_k^*) \Delta x_k \).

7) If the limit in step 6 exists, we say the function \( f \) is integrable on the interval \( I = [a, b] \). In this case, the limit is denoted by the symbol \( \int_{a}^{b} f(x) \, dx = \lim_{\|\Delta x_k\|\to 0} \sum_{k=1}^{n} f(x_k^*) \Delta x_k \) and is called the definite integral of \( f \) from \( a \) to \( b \). The numbers \( a \) and \( b \) are called the lower and upper limits of integration, respectively, and \( f(x) \) is referred to as the integrand.