# 1 | **Slicing into Rectangles**

The general idea of Riemann sums is to slice a curve into vertical non-overlapping rectangles to approximate the area between the curve and the x-axis. This can be expressed mathematically as a summation given the function $f(x)$, the range $[a, b]$, and the number of rectangles $n$:

$$\sum_{k=1}^{n} \frac{b-a}{n} f(a + k\frac{b-a}{n})$$

# 2 | **Area Interpretation**

# 3 | **Upper and Lower Bound**

# 4 | **the Definite Integral**