Simpson's rule with sums.

Let $h = (a - b)/N$ for some function f, large positive integer N, and integration limits a and b. Then,

$$A \approx \frac{h}{3} \sum_{i=0}^{N-2} \Big[f(a + ih) + 4f(a + (i + 1)h) + f(a + (i + 2)h) \Big].$$