Trapazodial rule formula:

$$h = \frac{(b-a)}{n}, \int_a^b f(x) \approx \frac{h}{2}\left[f(a) + 2\sum_{i=1}^{n-1} f(x_i) + f(b)\right]$$

Simpson rule formula:

$$h = \frac{(b-a)}{n}, \int_a^b f(x) \approx \frac{h}{3}\left[f(a) + 4\sum_{i\,odd}^{n-1} f(x_i) + 2\sum_{i\,even}^{n-1} f(x_i) + f(b)\right]$$

Midpoint rule formula:

$$h = \frac{(b-a)}{n}, x_i = a + i(h), m_i = \frac{(x_i + x_{i-1})}{2}, \int_a^b f(x) \approx \sum_1^n f(x_i)(h)$$

Results for $f(x) = 4x^3 - 5x, a = 1, b = 10, n = 10$

Exact value = 9751.5