Numerical experiment project 1

1. Numerically compute the Itôand Stratonovich integrals.

$$I^I(T) = \int_0^T f(t)dB_t \approx \sum_{i=0}^{n-1} f(t_{2j})(B_{t_{2j+2}} - B_{t_{2j}}) := I_n^I(T); \tag{1}$$

$$I^S(T) = \int_0^T f(t) \circ dB_t \approx \sum_{i=0}^{n-1} f(t_{2j+1})(B_{t_{2j+2}} - B_{t_{2j}}) := I_n^S(T). \tag{2}$$

Test $T = 1$ and $n = 10^{2:5}$ for $f_K(t) = B_t + \sin(K\pi B_t)$ with $K = 0, 1, 5, 10$.