

Exercise session 4, Stochastic Calculus Part I.

- 1** Let S_n be a zero mean random walk, $E[\xi_1] = 0$. Let $\sigma^2 = E[\xi_1^2]$. Show that $S_n^2 - \sigma^2 n$ is a martingale.
- 2** Exercise 3.13 in Klebaner.
- 3** Let $f(t) = \arctan(t)$. Find $df(B_t)$.
- 4** Let $\tau_1 < \tau_2$ be stopping times. Is $1_{(\tau_1, \tau_2]}(t)$ a simple adapted process?