

Problem Set 9

May 11, 2012

1. Construct a symmetric random walk as we discussed in class and show its limit distribution.
2. The solution of the following stochastic differential equation

$$S(t) = S(0) \exp \left[\left(\mu - \frac{1}{2} \sigma^2 \right) t + \sigma B(t) \right]$$

is

$$S(t) = S(0) \exp(\mu t) \exp \left[\sigma B(t) - \frac{1}{2} \sigma^2 t \right].$$

Find out the expectation of $\exp \left[\sigma B(t) - \frac{1}{2} \sigma^2 t \right]$.

This problem set is due to May 23.