71. A company's cash position, measured in millions of dollars, follows a generalized Wiener process with a drift rate of 0.5 per quarter and a variance rate of 4.0 per quarter. How high does the company's initial cash position have to be for the company to have a less than 15% chance of a negative cash position by the end of one year?
72. A company's cash position, measured in millions of dollars, follows a generalized Wiener process with a drift rate of 0.1 per month and a variance rate of 0.16 per month. The initial cash position is 2.0.
    (a) What are the probability distributions of the cash position after 1 month, 6 months, and 1 year?
    (b) What are the probabilities of a negative cash position at the end of 6 months and 1 year?
    (c) At what time in the future is the probability of a negative cash position greatest?
73. Suppose that a stock price has an expected return of 15% per annum and a volatility of 30% per annum. When the stock price at the end of a certain day is \$60, calculate the following:
    (a) The expected stock price at the end of the next day.
    (b) The standard deviation of the stock price at the end of the next day.
74. Consider a non-dividend-paying stock with volatility 20% providing expected return of 10%. Use Monte Carlo simulation to estimate the stock price after 10 weeks, using the following random sample for ε: 0.52, 1.44, -0.86, 1.46, -0.69, -0.74, 0.21, -1.1, 0.73, 1.16, 2.56. The current stock price is \$100.
75. If S follows geometric Brownian motion, what is the process followed by

    (a) $2S$; (b) S^2; (c) S^n with $n \in \mathbb{N}$; (d) e^S; (e) $e^{r(T-t)}/S$.