1. Suppose that the spot price of a certain good is \$400, the 1-year forward price of that good is \$425, and the 1-year interest rate is 5% pa. Is there an arbitrage opportunity? If so, describe the arbitrage opportunity in detail.
2. Suppose that the spot price of a certain good is \$600, the 1-year forward price of that good is \$623, and the 1-year interest rate is 5% pa. Is there an arbitrage opportunity? If so, describe the arbitrage opportunity in detail.
3. An investor enters into a short forward contract to sell 100,000 GBP for USD at an exchange rate of 1.35 USD per GBP. How much does the investor gain or lose if the exchange rate at the end of the contract is (a) 1.37 and (b) 1.34?
4. An investor possesses a long forward contract on a stock with 1-year forward price \$100 and a long European put option on the same stock with maturity 1 year and strike price \$100. For which stock prices in one year will the investor make a profit?
5. The current price of a stock is \$170, and 1-year European call options with a strike price of \$180 currently sell for \$17. An investor who feels that the price of the stock will increase is trying to decide between buying 100 shares and buying 1,000 call options.
   (a) Show that both strategies involve the same initial investment.
   (b) Depending on the stock price at expiration, ignoring the time value of money, find which one of the two strategies is more profitable.