Suggested problems:

1. Construct payoff and profit tables on expiration to show what position in IBM puts, calls and/or underlying stock best expresses the investor’s objectives described below. Assume IBM currently sells for $150 so that profit tables between $100 and $200 in $10 increments are appropriate. Also assume that “at the money” puts and calls cost $15 each. (As always, the profit tables ignore the time value of money.)

(a) An investor wants upside potential if IBM increases but wants losses no greater than $15 if prices decline.

(b) An investor wants to capture profits if IBM declines in price but wants a guaranteed limited loss if prices increase.

(c) An investor wants to capture profits if IBM declines in price and is ready to accept unlimited losses if prices increase. [2 answers are possible]

(d) An investor already owns IBM (at a price of $150) and wants to protect against price declines but wants to retain upside if prices rise. Only one transaction is permitted here.

2. Suppose a European call option has an exercise price of $100 and the underlying asset has a price of $100. The option expires in 1 year and the continuously compounded interest rate is 6%. Assume the underlying asset does not pay dividends.

(a) What is the intrinsic value of this option?

(b) What will the option be worth on expiration if the stock price in 1 year is $110? What if the stock price is $90?

(c) What is the lower bound on the price of this option today?

(d) Assume that the value of the call is $10. What is the value of a European put option with the same exercise price?

(e) Is the value of the American call option any different from the European call option? Why or why not?