Problem 2.1. (5 points) Which of the following constitutes a one-year, $100-strike covered call?

(a) Write a one-year, $100-strike call and short the underlying asset.
(b) Write a one-year, $100-strike call and buy the underlying asset.
(c) Buy a one-year, $100-strike call and short the underlying asset.
(d) Buy a one-year, $100-strike call and buy the underlying asset.
(e) None of the above.

Solution: (b)

Problem 2.2. (5 points) A stock’s price today is $1000 and the annual effective interest rate is given to be 5%. You write a one-year, $1,050-strike call option for a premium of $10 while you simultaneously buy the stock. What is your profit if the stock’s spot price in one year equals $1,200?

(a) $150.00 
(b) $139.90 
(c) $10.50 
(d) $39.00 
(e) None of the above.

Solution: (c)

\[ S(T) - 1000(1.05) - (S(T) - K)_+ + 10(1.05) = 1050 - 990(1.05) = 10.50. \]

Problem 2.3. (5 points) Source: Sample MFE (Intro) Problem #56.
Determine which of the following positions has the same cash flows as a short stock position:

(a) Long forward and long zero-coupon bond 
(b) Long forward and short forward 
(c) Long forward and short zero-coupon bond 
(d) Long zero-coupon bond and short forward 
(e) Short forward and short zero-coupon bond

Solution: (e)