Assignment 2
Due Date: Sep. 25, 2024 (Wed.)

1.

Paul enters into a forward contract with Tim. Paul is obligated to sell the underlying asset to Tim at expiration at the forward price of F. If the spot price at expiration were S, Paul's payoff would be \$10. If the spot price at expiration were 20% higher, Tim's payoff would be \$18. Determine S.

2.

Aleshia enters into a long forward contract. If the spot price at expiration were S, her payoff would be $-\$10$. If the spot price at expiration were 20% higher, her payoff would be \$8. Determine S.

3.

Jason enters into a long forward based on Asset A, with a forward price of \$85. He also enters into a short forward based on Asset B, with a forward price of \$95. At a spot price of S for both assets, his payoffs under the two contracts would be the same. At a spot price of $S + \$8$, his payoff under Contract A would be X. Determine X.

4.

The current price of a stock is \$84. A one-year forward contract is entered into. It is expected that 4 quarterly dividends of \$5 each will be paid on the stock starting 3 months from now. The 4^{th} dividend will be paid one day before expiration of the forward contract. The risk-free interest rate is 6% compounded quarterly. What is the price of a prepaid forward contract?

5.

A stock has a current price of \$65. A dividend of \$3.25 is expected to be paid in 6 months. The risk-free interest rate is 10% effective per annum. X is the forward price of a one-year forward contract that has the stock as the underlying asset. Determine X.

6.

The current price of a stock is \$72. The stock is expected to pay dividends continuously at a constant annual rate of 2%. The risk-free force of interest is 6% per annum. X is the forward price of a 1.5-year forward contract. Determine X.