MFE5130 – Financial Derivatives
First Term, 2019 – 20

Problems on Chapters 7 and 8

Chapter 7:
Problem
8.2,
8.10,
8.11

Chapter 8:
Problem
9.1, 9.3, 9.7, 9.9, 9.13

Additional Problem 1
Suppose put prices are given by

Strike	50	55	60
Put premium	7	10.75	14.45

Is there any convexity violation? If yes, what spread would you use to effect arbitrage?

Additional Problem 2
Stock A does not pay dividends and has a price of $22.

Stock B does not pay dividends and has a price of $26.

Consider the following two options:

Option 1: A European option gives its owner the right at expiration to give up a share of Stock B in exchange for a share of Stock A.

Option 2: A European option gives its owner the right at expiration to give up a share of Stock A in exchange for a share of Stock B.

Both Option 1 and Option 2 expire in 1 year.

We form a portfolio which contains a long 1 unit of Option 1 and a short 1 unit of Option 2. Find the current value of this portfolio.