

Math 194, Winter 2020

Homework 8 — Due Monday, March 9, 2020

1. In this exercise we use the setting of Exercise 2, Section 3.7 (page 52–53 of the text). Consult the solution of Exercise 3 on Homework 7 for a description of an Equivalent Martingale Measure \mathbf{P}^* .

(a) Use \mathbf{P}^* to compute the time t price C_t of the European call option with payoff $(S_2^1 - 6)^+$ for $t = 0, 1$.

(b) Now use \mathbf{P}^* to compute the time t price P_t of the European put option with payoff $(6 - S_2^1)^+$ for $t = 0, 1$.

(c) Confirm the call-put parity relationship $C_t - P_t = S_t - 6$ for $t = 0, 1$.

2. In this exercise we also use the setting of Exercise 2, Section 3.7 (page 52–53 of the text). In Homework 7 you saw that this model admits an Equivalent Martingale Measure. This market is therefore *viable*, by the First Fundamental Theorem of Asset Pricing. Is this market complete?

3. Exercise 3, Section 3.7 (page 53 of the text).