

MA381 Introduction to Probability, HW 8

Instructions: This homework will be collected at the beginning of class Thursday, Jan. 14. Late hw's are not accepted. Selected problems will be graded in depth; remaining problems will be awarded completion credit.

0: Be sure to read chapter 6, sections 6.1 and 6.3; skip 6.2.

1: Problem 1, pg. 239

2: The probability density function (PDF) of the RV X is given by

$$f_X(x) = \begin{cases} \frac{1}{2} - \frac{1}{4}|x - 3|, & 1 \leq x \leq 5 \\ 0, & \text{otherwise} \end{cases}$$

Do the following:

i. Sketch the graph of f_X and show that it is a probability density function.

ii. Find F_X and sketch it.

iii. Compute $P(4 \leq X \leq 5)$.

3: Problem 9, pg. 240.

4: Problem 1, pg. 254.

5: Problem 4, pg. 255.

6: Problem 7, pg. 255.

7: Problem 13, pg. 256.