MA381 Introduction to Probability, HW 13

Instructions: This homework will be collected at the beginning of class Thursday, Feb 7. Some problems will be graded in depth; remaining problems will be awarded completion credit. Late HW's are not accepted.

0: Be sure to read chapter 11, sections 11.1 and 11.2.

1: Do problem 3, page 465.

2: Do problem 4, page 465.

3: Do problem 5, page 465.

4: Do problem 12, page 466.

5: Let X_1, X_2, and X_3 be independent discrete RV's all with the same PMF:

$$p_X(x) = \begin{cases} 1/2, & \text{x = -1} \\ 1/2, & \text{x = 1} \\ 0, & \text{elsewhere} \end{cases}$$

i. Determine the MGF of these RV's, $M_X(t)$.

ii. Determine the MGF of $Y = X_1 + X_2$, $M_Y(t)$. Determine the PMF of Y, $p_Y(y)$, from $M_Y(t)$.

iii. Determine the MGF of $W = X_1 + X_2 + X_3$, $M_W(t)$. Determine the PMF of W, $p_W(y)$, from $M_W(t)$.

6: Do problem 4, page 474.

7: Do problem 5, page 474.

8: Do problem 10, page 474.