

Math 262 Reading Guide

Section 4.3

NAME _____

Read from the beginning of Section 4.3 up to the Section 4.3.1 heading (pages 264–268 in the Second Edition). Answer the following questions. *Hand in this worksheet at the next class.*

1. Let X_1, \dots, X_n be random variables, and a_1, \dots, a_n, b be constants.

(a) What can you say about $E(a_1X_1 + \dots + a_nX_n + b)$? Does it matter whether the X_i are independent?

(b) What can you say about $\text{Var}(a_1X_1 + \dots + a_nX_n + b)$ if the X_i are not independent?

(c) If the X_i are independent, how does your answer to (b) simplify?

2. How does Example 4.18 use the Theorem on the previous page?

3. How does Example 4.19 use the Theorem to easily find the mean of a hypergeometric random variable?

4. What does the Corollary say about $E(X_1 - X_2)$ and $\text{Var}(X_1 - X_2)$?