

# Math 262 Reading Guide

Section 2.3

NAME \_\_\_\_\_

Read Section 2.3 and answer the following questions. *Hand in this worksheet at the next class.*

1. What is the definition of the **expected value** (or **mean value**) of a discrete random variable?
2. What is the expected value of a Bernoulli random variable  $X$  with  $p(1) = p$ ? (*Hint*: see Example 2.17)
3. What is the *Law of the Unconscious Statistician*?
4. What does *linearity of expectation* say about each of the following?
  - $E[a_1h_1(X) + a_2h_2(X) + b]$
  
  
  
  
  
  
  
  
  
  
  - $E(aX + b)$
- ☞ *Take note! Linearity of expectation is one of the most important concepts for the rest of the semester!*
5. What is the definition of the **variance** of a discrete random variable?
6. How does the **standard deviation** of a random variable relate to its variance?
7. What is the *variance shortcut formula*?