Math 262 Reading Guide

Section 3.2 NAME

Read Section 3.2 and answer the following questions. *Hand in this worksheet at the next class.*

1. What is the definition of the **expected value** of a continuous random variable? How does this compare to the expected value of a discrete random variable?

2. What is the *Law of the Unconscious Statistician* for continuous random variables?

3. What is the definition of the **variance** of a continuous random variable? How does this compare to the variance of a discrete random variable?

4. If $X \sim \text{Unif}[A, B]$, what are the mean and variance of X? (See Example 3.13.)

5. The proposition on Page 165 gives four properties of continuous random variables. Are any of these different from the corresponding properties for discrete random variables?

6. What is the definition of the **moment generating function** (mgf) of a continuous random variable? How does this compare to the definition of the mgf of a discrete random variable?