Homework 13: Variance and Standard Deviation

1. §4.3, #3, 6, 7(a).

2. Two distinct integers are chosen at random from the first five positive integers. Compute the expected value and variance of the absolute value of the difference of the two numbers.

3. Suppose that two evenly matched teams are playing in the World Series. Find the expected value, variance, and standard deviation of the total number of games played. (The winner is the first team to get four victories.)

4. An urn contains four chips numbered 1 through 4. Two are drawn without replacement. Let the random variable X denote the larger of the two. Find $E(X)$ and $\text{Var}(X)$.

5. Let X have pdf

$$f_X(x) = \begin{cases} 2(1-x), & \text{if } 0 \le x \le 1 \\ 0, & \text{otherwise} \end{cases}$$

   Find $E(X)$, $E(X^2)$, and $\text{Var}(X)$.