Math 477, Worksheet for lecture 18

Name: _____

Net ID: _____

1. Suppose X is a random variable with probability density function $f(x) = \begin{cases} 1/x^2 & \text{for } x > 1, \\ 0 & \text{for } x \leq 1. \end{cases}$

   (a) Find $E[X]$

   (b) Find $E[\sqrt{X}]$

2. Suppose there is a group of $2n$ people who are randomly paired up for a game (each pairing being equally likely). If they are again paired up the following day (independently of the first day), what is the expected number of pairs in common on both days?

3. A group of n men and n women are lined up at random. What is the expected number of men who have a woman next to them?