

Recitation 5 Answers
February 22, 2005

1. The result follows by rewriting the expectation summation in the following manner:

$$\mathbf{E}[X] = \sum_{x=0}^{\infty} xp_X(x) = \sum_{x=0}^{\infty} \sum_{k=1}^x p_X(x) = \sum_{k=0}^{\infty} \sum_{x=k+1}^{\infty} p_X(x) = \sum_{x=0}^{\infty} \mathbf{P}(X > x).$$

2. See online solutions.
3. See online solutions.