

Homework 1
MATH 4830, Spring 2006
due Thurs. Jan. 26

1. Suppose that X has the probability mass function $p_X(x) = x/c$ for $x = 1, 2, 3, 4$ and zero otherwise.

- (a) Find c .
- (b) Find the $E(X)$ and $V(X)$
- (c) Graph the pmf as a bar graph.

2. Suppose that X has the probability mass function $p_X(x) = cx$ for $x = 1, 2, \dots, 10$ and zero otherwise.

- (a) Find c .
- (b) Find the $E(X)$ and $V(X)$
- (c) Graph the pmf as a bar graph.

You may choose either Problem 3 **OR** Problem 4. If you have had Calculus, you should choose Problem 4.

3. Suppose that X has the probability mass function $p_X(x) = c(x + 1)^2$ for $x = 0, 1, 2, 3$ and zero otherwise.

- (a) Find c .
- (b) Find the $E(X)$ and $V(X)$
- (c) Graph the pmf as a bar graph.

4. Suppose that X has the probability density function $f_X(x) = cx^2$ for $0 \leq x \leq 1$, and zero otherwise.

- (a) Find c .
- (b) Find the $E(X)$ and $V(X)$
- (c) Sketch the pdf.

5. Install R on your own computer and go through the **introductory lessons in R** that are off the class web page. (**OR** You may go to the MERC Lab)