ECEn 370
Quiz 4
Friday, January 30, 2009.

1. (Lecture 8) True or False questions:
   (T/F) A **random variable** is a real-valued function of the outcome of an experiment.
   (T/F) A **discrete** random variable has a range that is either finite or countably infinite.
   (T/F) A **function of a random variable** defines another random variable.
   (T/F) The **probability mass function** gives the probability of each numerical value that the random variable can take.

2. (Lecture 9) Suppose that you attempt to graduate every year at the end of summer with a probability of success of 0.4. What is the probability that you graduate at the end of the second or third summer?

3. (Lecture 10) A random variable $X$ can take on the values {-2, -1, 0, 1, 2}. Its PMF is given by:

   $p_X(x) = \begin{cases} 
   \frac{1}{10}, & \text{if } x = -2 \\
   \frac{1}{5}, & \text{if } x = -1 \\
   \frac{1}{5}, & \text{if } x = 0 \\
   \frac{1}{5}, & \text{if } x = 1 \\
   \frac{3}{10}, & \text{if } x = 2 \\
   0, & \text{otherwise} 
   \end{cases}$

   What is the PMF of $Y$, given that $Y = 2|X|$?