CS 333202: Probability and Statistics HW3 Part II

- 1. For each of the following, determine the value(s) of k for which p is a probability mass function. Note that in parts (c), n is a positive integer.
 - (a) $p(x) = k(1+x)^2, x = -2, 0, 1, 2.$
 - (b) $p(x) = k(1/9)^x, x = 1, 2, 3, \dots$
 - (c) p(x) = kx, x = 1, 2, 3, ..., n.
- 2. In successive rolls of a fair die, let X be the number of rolls until the first 6 appears.
 - (a) Determine the probability mass function and the distribution function of X
 - (b) Determine the probability mass function of Y = 2X + 1.
- 3. If X has distribution function F, what is the distribution function of the random variable $\alpha X + \beta$, where α and β are constants, $\alpha \neq 0$?