## 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) $p(x)=k(1 / 9)^{x}, x=1,2,3, \ldots$.
(c) $p(x)=k x, x=1,2,3, \ldots, n$.
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 $Y=2 X+1$.
3. If $X$ has distribution function $F$, what is the distribution function of the random variable $\alpha X+\beta$, where $\alpha$ and $\beta$ are constants, $\alpha \neq 0$ ?
