CS 333202: Probability and Statistics
HW3 Part II

1. (a) $k = 1/15$.

   (b) $k = 8$.

   (c) $k = \frac{2}{n(n+1)}$.

2. (a) $p(i) = (\frac{5}{6})^{i-1}(\frac{1}{6}), i = 1, 2, 3, \ldots$
   $F_X(x) = 1 - (\frac{5}{6})^n$

   (b) $q(j) = (\frac{5}{6})^{(j-3)/2}(\frac{1}{6}), j = 3, 5, 7, \ldots$

3. When $\alpha > 0$

$$P\{\alpha X + \beta \leq x\} = F(\tfrac{x-\beta}{\alpha})$$

   When $\alpha < 0$

$$P\{\alpha X + \beta \leq x\} = 1 - \lim_{h \to 0^+} F(\tfrac{x-\beta}{\alpha} - 1)$$