Stat 254 - Chapter 4 - Solutions

1. (a) 0.55 (b) 0.75 (c) 5.55 (d) 11.5475

2. a

3.

X	100	250	500	1000
$P(X)$	1/15	2/15	7/15	5/15

Expected value: $\mu = \$606.67$

4. (a) X = number of accidents on highway 63 in one week. Distribution: $X \sim Pois(4)$
   (b) $P(X = 6) = \dfrac{e^{-4}4^6}{6!} = 0.1042$
   (c) $P(X \geq 3) = 1 - P(x \leq 2) = 1 - 0.2381 = 0.7619$
   (d) $\mu = 4$ and $\sigma^2 = 4$

5. (a) X = number of lime-flavoured skittles in a sample of 25. Distribution: $X \sim Bin(25, 0.2)$
   (b) $\binom{P(X=5)=25}{50.2^5 0.8^2 0=0.1960}$
   (c) $P(X \geq 10) = 1 - P(X \leq 9) = 1 - 0.9827 = 0.0173$
   (d) $\mu = 25(0.2) = 5$ and $\sigma^2 = 25(0.2)(0.8) = 4$