Sample Quiz 6

1. One fair die is tossed 1000 times.
   (a) Find the expected sum of all of the sixes that are thrown.
   (b) Find the standard deviation of the sum of the sixes that are thrown.

2. (a) A card is drawn and replaced from an ordinary deck of cards, 5 times in succession. What is the probability that at least 4 hearts will be drawn?
   (b) How many fair dice must be thrown so that there is a better than even chance of obtaining a one or a two?

3. Suppose 1% of blood donors are infected with HIV. Find the probability that there are at most 2 HIV contaminated blood samples amongst 500 samples taken.