Name:

Quiz 5: §7.1-7.3

Complete the following problems to the best of your ability. **SHOW
ALL OF YOUR WORK.** Unshown work will not be graded. You may
use a calculator.

1. [50] Suppose we take the four aces out of a deck of cards. We then pick
   cards at random from those four. The cards are the aces of spades and
   clubs (which are black) and hearts and diamonds (which are red).

   (a) What is the sample space of drawing a card from the stack of
       four?

   (b) Write down the set that represents the event of drawing a black
       card.

   (c) Suppose we draw the ace of spades three times, clubs twice, hearts
       six times, and diamonds four times. Give a relative frequency
       distribution that describes this experiment.

   (d) What was the relative frequency of drawing a black card?

2. [50] In 5th edition D&D, a greatsword does damage equal to the sum of rolling two six-sided dice. We're trying to work out what the distribution of our damage looks like.

   (a) What is the sample space of this experiment (recording the sum of rolling two six-sided dice)?

   (b) Assuming that both dice are fair, write a probability distribution for this experiment.

   (c) Using your probability distribution, what's the probability of rolling a number that isn't a four?

   (d) What's the probability of rolling at least a ten?