**MA 222A EXAM #1 Feb. 18, 2016**

Name (print):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

I pledge my honor that I have abided by the Stevens Honor System.

signature: ­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Closed book, closed notes, no electronic access. Answer all questions**.

1. If 70% of the population wears eyeglasses, what is the probability that in a group of 3 randomly selected people at least one of them will be wearing glasses?

2. A die is tossed until a “4” appears. What is the probability that it will take more than 3 tosses to get that first “4”?

3. John is going to take three shots at a target. On any single shot, the probability that he scores a hit is 0.9 .

What is the probability that John scores at least two hits in his three shots at the target?

4. If two dice are rolled, what is the probability that the sum of the two dice will be equal to eight?

5. In a group of 12 students, four are male and eight are female (one of the eight females is

named Susan). If a committee of 5 students is selected at random, what is the probability that

the committee has three females and two males with Susan being one of the females?

6. A gambler has in his pocket a fair coin and a two-headed coin. He selects one of the coins at random; when he flips it it comes up Heads.

a)What is the probability it is the fair coin?

b) Suppose he flips the same coin a second time and again it shows heads. What is now the probability that it is the fair coin?

7. Consider a city where all the homeowners have both liability insurance coverage and property damage coverage. This year 4% of the homeowners will file a liability claim and 10% of the homeowners will file a property claim. 1% of the homeowners will file only a liability claim (and not a property claim).

Calculate the probability that a randomly selected homeowner will not file a claim of either type.