Extra Problems Sheet　　　　　　　Name: _____
Discrete Probability HW Worksheet

In Problems 1–4 list the values of the given random variable X together with the probabilities of occurrence.

1. A fair coin is tossed two times and X is the random variable whose value for an outcome in the sample space is the number of heads obtained.

3. The random variable X is the number of female children in a family with three children. (Assume the probability of a female birth is $\frac{1}{2}$.)

In Problems 5–8 classify the given random variable as discrete or continuous. If it is discrete, state whether the sample space is infinite or finite.

5. X is the number of tosses of a coin in the experiment of tossing a fair coin repeatedly until a head occurs.

7. X is the length of time a person must wait in line at a checkout counter.

In Problems 9–12 find each probability. Assume X is a Poisson random variable with np = 6.

9. $P(X \le 5)$

11. $P(X = 5)$

13. **Consumer Arrival** At a supermarket, customers arrive at a checkout counter at the rate of 60 per hour. What is the probability that 8 or fewer will arrive in a period of 10 minutes?

15. **Defective Parts** A machine produces parts to meet certain specifications, and the probability that a part is defective is .05. A sample of 50 parts is taken. What is the probability that it will have 2 or more defective parts? Compute this probability, using both the Poisson and the binomial probability functions.