

Determine whether the following problems are general distribution problems, binomial distribution problems, Poisson distribution problems or multinomial distribution problems. Then answer the question.

1. The probabilities that a person will get 5 – 10 questions right on a trivia quiz are shown below. What is the mean?

X	5	6	7	8	9	10
P(x)	0.05	0.2	0.4	0.1	0.15	0.1

2. A survey found that 1 out of 5 Americans say he or she has visited a doctor in any given month. If 10 people are selected at random, a) find the probability that exactly 3 will have visited the doctor last month and b) find the mean and standard deviation

3. A sales firm receives, on average, 3 calls per hour on its too-free number. A) For any given hour, find the probability that it will receive at most 3 calls in a given hour. B) Find the mean and standard deviation.

4. A recent study of robberies for a certain geographic region showed an average of 1 robbery per 20,000 people each week. In a city of 80,000 people, a) find the probability that there will be 2 robberies in a given week and b) find the mean and standard deviation

5. In a large city, 50% of the people choose a movie, 30% choose dinner and a play, and 20% choose shopping as a leisure activity. If a sample of 5 people is randomly selected, find the probability that 3 are planning to go to a movie, 1 to a play and 1 to a shopping mall.

6. The local animal shelter adopts out cats and dogs each week with the following probabilities. Find the mean number of animals adopted each week.

X	3	4	5	6	7	8
P(X)	0.15	0.3	0.25	0.18	0.1	0.02

7. A telephone soliciting company obtains, on average, 5 orders per 1000 solicitations per week. If the company reaches 250 potential customers, a) find the probability of obtaining at least 2 orders in a given week and b) find the mean and the standard deviation

8. The average number of phone inquiries per day at the Poison Control Center is 4. A) Find the probability it will receive 5 calls on a given day. B) Find the mean and the standard deviation.

9. The *Statistical Bulletin* published by Metropolitan Life Insurance Company reported that 2% of all American births result in twins. If a random sample of 25 births is taken, find the probability that at least 3 sets of twins are born.

10. A landscape contractor bids on jobs where he can make \$3000 profit. The probabilities of getting 1, 2, 3, or 4 jobs in a month are shown.

Number of Jobs	1	2	3	4
Probability	0.2	0.3	0.4	0.1

a. What is the mean amount of profit per month?

b. What is the probability of getting at least two jobs in a particular month?

11. The average number of boat accidents during a summer month on Lake Emilie is 3 per 1000 per month. If there are 1000 boats on the lake during a summer month, find the probability that there will be 6 accidents during a summer month.