

Name: _____

AP Stats Ch 8 Graded Assignment

1. *Ladies Home Journal* magazine reported that 66% of all dog owners greet their dog before greeting their spouse or children when they return home at the end of the workday. Assume that this claim is true. Suppose 12 dog owners are selected at random.

a) What is the probability that exactly 8 of the owners greeted their dogs first?

b) What is the probability that no more than 6 owners greeted their dogs first?

c) What is the number of owners that you expect will greet their dogs first?

d) What is the probability that the first owner who greets his dog before his family is within the first 4 people observed?

2. Seventeen people have been exposed to a particular disease. Each one independently has a 40% chance of contracting the disease. A hospital has the capacity of handle 10 cases of the disease. What is the probability that the hospital's capacity will be exceeded?

3. Seed Depot advertises that 85% of its flower seed will germinate. Suppose that the company's claim is true. Judy buys a packet with 20 flower seeds from the Seed Depot and plants them in her garden.

a) What is the probability that at least 18 will germinate?

b) What is the probability that 15 or 16 seeds will germinate?

c) What is the probability that no more than 14 seeds will germinate?

4. In the United States, 44% of adults have type O blood. Suppose we choose 7 adults at random.

a) Find the probability that no more than 5 of them have type O blood.

b) Find the probability that the first person with type O blood is the 4th person tested.

c) How many people do you expect to have to test before you find someone with type O blood?

5. A chemistry test consists of twelve multiple choice questions. Nine must be answered correctly to receive a passing grade. If each question has five possible answers, find the probability that the student passes the quiz.
6. An automobile manufacturing company uses ten industrial robots as welders on its assembly line. On a given working day, the probability that a robot will be inoperative is .05. What is the probability that on a given working day:
- exactly two robots are inoperative?
 - more than two robots are inoperative?
 - the first inoperative robot is the 10th robot tested?
7. Mayco, a mail-order department store, has six telephone lines available for customers who wish to place their orders. If the probability that during business hours any one of the six telephone lines is engaged is $\frac{1}{4}$, find the probability that
- when a customer calls to place an order all six lines will be in use.
 - at least 4 are tested before one is busy
8. From experience, the manager of Kramer's Book Mart knows that 40% of the people who are browsing in the store will make a purchase. What is the probability that among ten people who are browsing in the store
- at least three will make a purchase
 - the first person to make a purchase is the fifth person selected?
9. An advertisement for brand A chicken noodle soup claims that 60% of all consumers prefer brand A over brand B, the chief competitor's product. To test this claim, Mr. David Horowitz, host of "The Consumer Advocate," selected ten people at random from the audience. After tasting both soups, each person was asked to state his or her preference. Assuming the company's claim is correct, find the probability that he company's claim was supported by the experiment; that is, six or more people stated a preference for brand A.