CHAPTER 2 EXAMPLE

Problem 1

In the past 30 days, Roger’s Rural Roundup has sold either 8, 9, 10, or 11 lottery tickets. It never sold fewer than 8 or more than 11. Assuming that the past is similar to the future, find the probabilities for the number of tickets sold if sales were 8 tickets on 10 days, 9 tickets on 12 days, 10 tickets on 6 days, and 11 tickets on 2 days.

Problem 2

A class contains 30 students. Ten are female (F) and U.S. citizens (U); 12 are male (M) and U.S. citizens; 6 are female and non-U.S. citizens (N); 2 are male and non-U.S. citizens.

A name is randomly selected from the class roster and it is female. What is the probability that the student is a U.S. citizen?

Problem 3

Your professor tells you that if you score an 85 or better on your midterm exam, then you have 90% chance of getting an A for the course. You think you have only a 50% chance of scoring 85 or better. Find the probability that both your is 85 or better and you receive an A in the course.

Problem 4

A statistic class was asked if it believed that all tests on the Monday following the football game win over their archrival should be postponed automatically. The results were as follows:

Strongly agree 40

Agree 30

Neutral 20

Disagree 10

Strongly disagree 0

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100

Transform this into a numeric score, using the following random variable scale, and find a probability distribution for the results:

Strongly agree 5

Agree 4

Neutral 3

Disagree 2

Strongly disagree 1

Compute the expected value of X.

Compute the variance and standard deviation for the random variable X.

Problem 5

A candidate for public office has claimed that 60% of voters will vote for her. If 5 registered voters were sampled, what is the probability that exactly 3 would say they favor this candidate?

Problem 6

The length of the rods coming out of our new cutting machine can be said to approximate a normal distribution with a mean of 10 inches and a standard deviation of 0.2 inch. Find the probability that a rod selected randomly will have a length. Use standard normal distribution table.

1. Of less than 10.0 inches
2. Between 10.0 and 10.4 inches
3. Between 9.6 and 9.9 inches
4. Between 9.9 and 10.4 inches (+)