

Hence, the probability would be reported as 0.4902 if using tables or 0.4892 if using the calculator. This means that the probability that the sample proportion differs from the population proportion by more than 2% is approximately 49%.

7.3 Section Exercises

Calculating Standard Scores for Sample Proportions

Given the following parameters for a sampling distribution of sample proportions, calculate the standard score of the sample proportion. Round the standard score to two decimal places.

1. $p = 0.34$, $x = 35$, $n = 100$
2. $p = 0.54$, $x = 563$, $n = 1000$
3. $p = 0.8$, $x = 24$, $n = 29$
4. $p = 0.61$, $x = 66$, $n = 98$
5. $p = 0.15$, $x = 1152$, $n = 12,500$
6. $p = 0.93$, $x = 987$, $n = 1012$

Probability

Find each specified probability.

7. A large car dealership claims that 47% of its customers are looking to buy a sport utility vehicle (SUV). A random sample of 61 customers is surveyed. What is the probability that less than 40% are looking to buy an SUV?
8. The local nursery is waiting for its spring annuals to be delivered, and 20% of the plants ordered are petunias. If the first truck contains 120 plants packed at random, what is the probability that no more than 30 of the plants are petunias?
9. A car lot sells pre-owned cars. Its sales manager reports that 78% of the cars are sold for less than \$10,000. What is the probability that in a random sample of 45 cars, more than 75% are sold for less than \$10,000?
10. A news report states that 65% of vehicles sold nationally are SUVs. A random sample of 100 vehicles sold in the last month is taken. What is the probability that at least 70 of the vehicles in the sample were SUVs?
11. A local florist says that 85% of all flowers sold for Valentine's Day are roses. Consider a random sample of 150 orders for Valentine's Day flowers. What is the probability that less than 80% of the orders in the sample are for roses?
12. At one private college, 34% of students are business majors. Suppose that 260 students are randomly selected from a list in the registrar's office. What is the probability that the proportion of business students in the sample differs from the population proportion by less than 2%?
13. At a large grocery store, 72% of shoppers are women. In order to obtain information about spending habits, 40 shoppers are randomly chosen for a survey. What is the probability that the proportion of women in the sample differs from the population proportion by more than 3%?
14. A major appliance retailer claims that 18% of all appliances sold are dishwashers. If 112 appliances sold are randomly selected, what is the probability that the proportion of dishwashers sold differs from the population proportion by over 2%?

15. A popular restaurant downtown says that 20% of diners order the daily special. Consider a random sample of 128 people who dined at the restaurant. What is the probability that the proportion of diners who ordered the special differs from the population proportion by less than 1%?
16. A study of college freshmen revealed that 29% had no work experience prior to entering college. Suppose a group of 75 college freshmen is chosen at random. What is the probability that less than 18 of the students selected had no work experience prior to entering school?