

Chapter 7 Examples

1. The amount of hamburger beef sold per day by the McDonalds restaurants across a large city is normally distributed. A sample of 35 restaurants is taken and the sample mean is found to be 2,100 pounds and the standard deviation is 450 pounds. What is the probability that the population average amount of hamburger beef sold will be between 2,125 pounds and 2,150 pounds?

ANSWER: There is a 11.61% chance that the average amount of hamburger beef sold will be between 2,125 to 2,150 pounds based on a sample of size 35.

2. The dean of a business school claims that the average MBA graduate is offered a starting salary of \$55,000. The standard deviation of the offers is \$4,600. What is the probability that in a random sample of 38 MBA graduates, the mean starting salary is less than \$53,000?

ANSWER: There is a 0.37% chance that the average MBA graduates' salary will be less than \$53,000 based on a sample of size 38.

3. Suppose that during any hour in a large department store, the average number of shoppers is 448, with a standard deviation of 21 shoppers. What is the probability that a random sample of 49 different shopping hours will yield a sample mean between 441 and 446 shoppers?

ANSWER: There is a 24.15% chance that the average number of shoppers will be between 441 to 446 shoppers based on a sample of size 49.

4. A particular automobile costs an average of \$17,755 in the Pacific Northwest. The standard deviation of prices is \$650. Suppose a random sample of 30 dealerships is taken to determine what price they charge for this automobile. Assume that only 120 dealerships in the Pacific Northwest sell this brand of car. What is the probability of getting a sample average cost of less than \$17,800?

ANSWER: There is a 67% chance that the average cost for the car will be less than \$17,800 based on a sample of size 30.

5. In 2006, there were a total of 1500 direct marketing companies. A study showed that 73% of all direct marketing companies conduct transactions on the Internet. Suppose a random sample of 90 companies is taken. What is the probability that 78% or more of the direct marketing companies are turning to the Internet for new opportunities?

ANSWER: There is a 13.57% chance that 78% or more of the direct marketing companies are turning to the Internet for new opportunities based on a sample of size 90.

6. According to a recent study, 21% of the people who have credit cards are very close to their total limit on the card(s). Suppose a random sample of 600 credit cards users is taken. What is the probability that more than 25% of the credit card users are very close to the total limit on their card(s)?

ANSWER: There is a 0.80% chance that 25% or more of the credit card users are very close to the total limit on their cards based on a sample of size 600.

7. A recent survey asked business travelers about the purpose for their most recent business trip. Nineteen percent responded that it was for an internal company visit. Suppose 950 business travelers are randomly selected. What is the probability that between 16% and 20% of the business travelers say that the reason for their most recent business trip was an internal company visit?

ANSWER: There is a 77.61% chance that between 16% and 20% of the business trips were for internal visits based on a sample of size 950.