

Honors Statistics

5-5: The Central Limit Theorem

Name _____

Period _____ Date _____

The average teacher's salary in New Jersey is \$52,174. Suppose that the distribution is normal with standard deviation equal to \$7500.

1. What is the probability that a randomly selected teacher makes less than \$50,000 a year?
2. If we sample 100 teachers, what is the probability that the sample mean is less than \$50,000?

The average price of a pound of sliced bacon is \$2.02. Assume the standard deviation is \$0.08. Assume the distribution is approximately normal.

3. What is the probability of selecting a one-pound package that is less than \$2.00?
4. If a random sample of 40 one-pound packages is selected, find the probability that the mean of the sample will be less than \$2.00.

The average cholesterol content of a certain brand of eggs is 215 mg, and the standard deviation is 15 mg. Assume the distribution is normally distributed.

5. If a single egg is selected, find the probability that the cholesterol content will be greater than 220 mg.
6. If a sample of 25 eggs is selected, find the probability that the mean of the sample will be larger than 220 mg.

At a large publishing company, the mean age of proofreaders is 36.2 years and the standard deviation is 3.7 years. Assume the distribution is normal.

7. If a proofreader from the company is selected at random, find the probability that his or her age will be between 36 and 37.5 years.
8. If a random sample of 15 proofreaders is selected, find the probability that the mean age of the proofreaders in the sample will be between 36 and 37.5 years.

Stats 5.5 Worksheet Answers

1 .3859

2 .00187

3 .4013

4 .0570

5 .3694

6 .0475

7 .1589

8 .4962