

Applied Statistics
Chapter 6 Test Review

1. Draw a normal probability plot based on the following data and indicate if it appears to follow a normal distribution:

3, 5, 12, 21, 33, 45, 52, 40, 30, 89, 150, 172, 181, 183, 195, 198, 205, 310, 315, 405

2. The average annual precipitation for a large city is 30.85 inches with a standard deviation of 3.6 inches. Assume the variable is normally distributed. Find the probability that the mean of a random selection of 45 months will have a mean between 29 and 30.2 inches.

3. A mandatory competency test for high school sophomores has a normal distribution with a mean of 350 and a standard deviation of 50. The top 25% of students receive \$500, what is the minimum score you would need to receive this award?

4. The average waiting time to be seated for a dinner at a popular restaurant is 23.5 minutes, with a standard deviation of 3.6 minutes. Assume the variable is normally distributed. When a patron arrives at the restaurant for dinner, find the probability that the patron will have to wait more than 22 minutes.

5. The average number of calories in a 1.5 ounce chocolate bar is 225. Suppose that the distribution of calories is approximately normal with $\sigma = 20$. Find the probability that a randomly selected chocolate bar will have less than 265 calories.

6. To qualify for a police academy, applicants are given a test of physical fitness. The scores are normally distributed with a mean of 64 and a standard deviation of 9. If only the top 25% of the applicants are selected, find the cutoff score.

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7. The average number of milligrams of sodium in a certain brand of low-salt microwave frozen dinners is 600 mg, and the standard deviation is 35 mg. Assume the variable is normally distributed. If a sample of 50 dinners are selected, find the probability that the mean of the sample will be smaller than 580 mg.

8. A Gallup survey indicated that 80% of 18- to 29-year-olds, if given a choice, would prefer to start their own business rather than work for someone else. A random sample of 200 18- to 29-year-olds is obtained today (section 8.2)

a) In a random sample of 200 18- to 29-year-olds, what is the probability that no more than 72% would prefer to start their own business?

(b) In a random sample of 200 18-to 29-year olds, what is the probability that 150 or less would prefer to start their own business?