Unit 10

Name _____ Date _____

LESSON 11.1 **Practice B** *For use with pages 744–750* Stats Mid-Unit Review

Find the mean, median, and mode of the data set.

1. 6, 22, 4, 15, 10, 8, 8, 7, 14, 20
2. 10, 15, 12, 20, 25, 22, 28, 24, 22, 26
3. 53, 52, 48, 44, 60, 48, 44, 57, 44
4. 100, 150, 100, 130, 125, 135, 140, 145, 100

Find the range and standard deviation of the data set.

5. 47, 18, 65, 28, 43, 18
6. 70, 27, 41, 30, 10, 47, 11
7. 29.4, 22.9, 15.7, 26.9, 24.0, 27.5, 11.4
8. 35.8, 29.4, 32.1, 24.9, 30.5, 20.3

Identify the outlier in the data set. Then find the mean, median, mode, range, and standard deviation of the data set when the outlier is included and when it is not.

9. 4, 6, 10, 2, 90, 3, 10, 5, 1
10. 52, 61, 55, 1, 59, 68, 69, 55

In Exercises 11–14, find the mean, median, mode, range, and standard deviation of the data set.

11. **Cordless Phones** The data set below gives the prices (in dollars) of cordless phones at an electronic store.

    35, 50, 60, 60, 75, 65, 80

12. **Baseball** The data set below gives the numbers of homeruns for the 10 batters who hit the most homeruns during the 2005 Major League Baseball regular season.

    51, 48, 47, 46, 45, 43, 41, 40, 40, 39

13. **Department of Motor Vehicles** The data set below gives the waiting times (in minutes) of several people at a department of motor vehicles service center.

    11, 7, 14, 2, 8, 13, 3, 6, 10, 3, 8, 4, 8, 4, 7

14. **Cereal** The data set below gives the calories in a 1-ounce serving of several breakfast cereals.

    135, 115, 120, 110, 110, 100, 105, 110, 125

In Exercises 15–17, use the following information.

High Temperatures The data set below gives a city's high temperatures (in degrees Fahrenheit) during a 15-day period.

36, 37, 36, 34, 49, 33, 30, 30, 32, 31, 31, 32, 32, 33, 35

15. Identify the outlier in the data set.
16. Find the mean, median, mode, range, and standard deviation of the data set when the outlier is included and when it is not.
17. *Describe* the outlier's effect on the measures of central tendency and dispersion.

LESSON 11.1

Name _____ Date _____

LESSON 11.3

Practice B

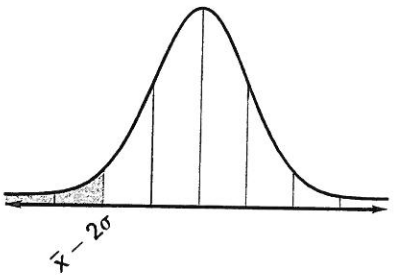
For use with pages 757–762

A normal distribution has mean $\bar{x}$ and standard deviation σ. Find the indicated probability for a randomly selected x-value from the distribution.

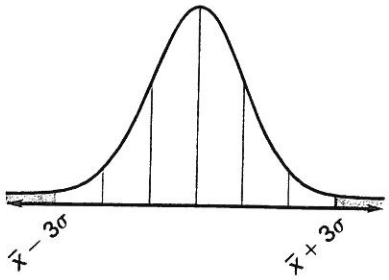
1. $P(x \geq \bar{x} + \sigma)$
2. $P(x \leq \bar{x} + 2\sigma)$
3. $P(x \geq \bar{x} - 3\sigma)$

Give the percent of the area under the normal curve represented by the shaded region.

4.



5.



A normal distribution has a mean of 27 and a standard deviation of 5. Find the probability that a randomly selected x-value from the distribution is in the given interval.

6. Between 22 and 32
7. Between 12 and 27
8. Between 17 and 37
9. At least 22
10. At least 37
11. At most 32

A normal distribution has a mean of 75 and a standard deviation of 10. Use the standard normal table on page 759 of your textbook to find the indicated probability for a randomly selected x-value from the distribution.

12. $P(x \leq 70)$
13. $P(x \leq 52)$
14. $P(x \leq 78)$
15. $P(x \leq 96)$
16. $P(x \leq 44)$
17. $P(x \leq 106)$

18. **Biology** The weights of adult male rhesus monkeys are normally distributed with a mean of 17 pounds and a standard deviation of 3 pounds. What is the probability that a randomly selected adult male rhesus monkey has a weight less than 14 pounds?

In Exercises 19 and 20, use the following information.

Apples The annual per person consumption of apples in the United States is normally distributed with a mean of 16 pounds and a standard deviation of 4 pounds.

19. Find the z-score for an annual per person consumption of 22 pounds.
20. What is the probability that a randomly selected person in the United States has an annual per person consumption of apples less than 22 pounds?

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LESSON 11.4

Practice B

For use with pages 766–771

Identify the type of sample described. Then tell if the sample is biased. *Explain* your reasoning.

1. A consumer advocacy group wants to know if car owners believe their car is reliable. The group randomly selects 1020 car owners and mails out a survey to each one.
2. A grocery store wants to know which day of the week consumers prefer to do their grocery shopping. Everyone who shops at the store on Friday is asked which day of the week they prefer to do their grocery shopping.
3. A survey of students' favorite school subjects is being conducted. Every other student in the math club is asked "Which school subject is your favorite?"

Find the margin of error for a survey that has the given sample size. Round your answer to the nearest tenth of a percent.

4. 200	**5.** 350	**6.** 1100	**7.** 2600
8. 5200	**9.** 495	**10.** 280	**11.** 9000

Find the sample size required to achieve the given margin of error. Round your answer to the nearest whole number.

12. ±2%	**13.** ±4%	**14.** ±9.5%	**15.** ±2.7%
16. ±4.5%	**17.** ±0.5%	**18.** ±3.6%	**19.** ±7.5%

In Exercises 20 and 21, use the following information.

Technology Survey In a survey of 504 people in the United States, about 11% said that the influx of new technologies such as computers has left them feeling overwhelmed.

20. What is the margin of error for the survey? Round your answer to the nearest tenth of a percent.
21. Give an interval that is likely to contain the exact percent of all people in the United States who feel overwhelmed by the influx of new technologies.

In Exercises 22–25, use the following information.

TV in the Bedroom A survey reported that 510 kids ages 8 to 18, or 68% of those surveyed, have a TV in their bedroom.

22. How many kids ages 8 to 18 were surveyed?
23. What is the margin of error for the survey? Round your answer to the nearest tenth of a percent.
24. Give an interval that is likely to contain the exact percent of all kids ages 8 to 18 who have a TV in their bedroom
25. About how many kids ages 8 to 18 should be surveyed to have a margin of error of 2.5%?

"11.1"

Practice Level B

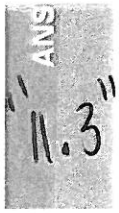
1. 11.4; 9; 8 **2.** 20.4; 22; 22 **3.** 50; 48; 44

4. 125; 130; 100 **5.** 47; 16.94 **6.** 60; 19.6

7. 18; 6.1 **8.** 15.5; 5.01 **9.** 90; 14.6, 5, 10, 89, 26.8; 5.1, 4.5, 10, 9, 3.2 **10.** 1; 52.5, 57, 55, 68, 20.3; 59.9, 59, 55, 17, 6.1 **11.** 60.7, 60, 60, 45, 14.0 **12.** 44, 44, 40, 12, 3.8 **13.** 7.2, 7, 8, 12, 3.5 **14.** 114.4, 110, 110, 35, 10.1 **15.** 49

16. 34.1, 33, 32, 19, 4.5; 33, 32.5, 32, 7, 2.2

17. For measures of central tendency, the mean is affected the most by the additional temperature. The mode is affected the least. The standard deviation and the range increase with the addition of an outlier.



Practice Level B

1. 0.16 **2.** 0.975 **3.** 0.9985 **4.** 2.5% **5.** 0.3%

6. 0.68 **7.** 0.4985 **8.** 0.95 **9.** 0.84 **10.** 0.025

11. 0.84 **12.** 0.3085 **13.** 0.0107 **14.** 0.6179

15. 0.9821 **16.** 0.0010 **17.** 0.9990 **18.** 0.16

19. 1.5 **20.** 0.9332

"11.4"

Practice Level B

1. random sample; unbiased; The sample is representative of the population (car owners).

2. convenience sample; biased; Consumers shopping on a Friday probably prefer to shop on that day. **3.** systematic; biased; Students in the math club are more likely to prefer math than other students.

4. ±7.1% **5.** ±5.3% **6.** ±3.0% **7.** ±2.0%

8. ±1.4% **9.** ±4.5% **10.** ±6.0% **11.** ±1.1%

12. 2500 **13.** 625 **14.** 111 **15.** 1372 **16.** 494

17. 40,000 **18.** 772 **19.** 178 **20.** 4.5%

21. between 6.5% and 15.5% **22.** 750 **23.** 3.7%

24. between 64.3% and 71.7% **25.** 1600