FOCUS ON 11.2

Name _____ Date _____

Practice

For use with pages 626–627

1. Test Scores The data below are a student's test scores in math class.

91, 87, 87, 93, 95, 86, 91

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

b. Find the mean, median, and mode of the data after the two lowest scores are removed.

2. T-Shirts The data below are the costs of different types of T-shirts at a clothing store.

$7.95, $9.95, $6.95, $12.95, $14.95, $12.95, $12.95, $9.95

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

b. Find the mean, median, and mode after a decrease of $0.50 to the cost of each T-shirt. How do the mean, median, and mode change?

3. Practicing Music The data below are the number of hours that students in a music class practice their musical instrument each week.

8, 7, 5, 7, 3, 5, 6, 4

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

b. Suppose a new student who practices the drums for 7 hours a week joins the music class. How does adding this data value change the mean, median, and mode?

c. Suppose the two students who practice 5 hours a week start practicing an extra hour each week to prepare for a concert. How does adding this extra hour change the mean, median, and mode?

4. Books The data below are the costs of different paperback books at a bookstore.

$7.25, $6.95, $5.95, $7.95, $8.50, $9.50

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

b. The store marks up the price of each book by $2. Find the mean, median, and mode of the data including the markup.

c. The store is having a 25% off sale on all paperback books. Find the mean, median, and mode of the sale priced data.

5. Challenge The data below are the costs of different school supplies at a school store.

$0.95, $1.50, $0.59 $3.50, $7, $5.50, $1.50, $6.50

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

b. Suppose the store marks up the price of each item under $5.00 by $0.25 and reduces the price of each item over $5.00 by $0.75. Find the mean, median, and mode of the marked-up and discounted data.

c. Suppose the store discounts all items that cost $3 or more by 40%. Find the mean, median, and mode of the discounted data.

LESSON 11.3

Name _____ Date _____

Practice

For use with pages 630–634

Tell whether the data are *numerical* or *categorical*. Then tell which display(s) you would use to display the data. Explain your reasoning.

1. A survey was conducted where the responses were agree, disagree, and unsure.

2. A zookeeper recorded the weights of the baby animals in the zoo.

3. A study determined the average winning score of high school soccer teams.

4. A meteorologist recorded the amount of rainfall in 3 states over one year.

Tell which data display(s) allow you to identify the specified information.

5. The range of the data set

6. The least value of the data set

7. A teacher records the scores on a project and wants to group the data in intervals of 5 points. Should the teacher use a stem-and-leaf plot or a histogram? Explain.

8. Thirty people were asked to state the number of hours per week that they commute to and from work in a car. The frequency table shows the results.

a. Is the frequency table misleading? Explain.

b. What conclusions can you make from the frequency table?

Hours Spent Commuting		
Interval	**Tally**	**Frequency**
0–2 hours	𝍸	4
3–5 hours	𝍸 |	6
6–10 hours	𝍸 𝍸 𝍸	15
11–12 hours	𝍸	3
13–20 hours	||	2

9. The table shows the number of people (in thousands) attending a tennis tournament in 10 different years.

a. Make a line graph using every 5th year, starting with 1980. What trend does the graph show?

b. Make a new line graph using all the years shown in the table. What trend does it show?

c. Which line graph represents the data more accurately, the one in part (a) or the one in part (b)? Explain.

Tennis Tournament Attendance			
Year	**Attendance**	**Year**	**Attendance**
1980	12.3	1990	17.3
1981	14.1	1992	20.1
1982	20.2	1995	15.9
1985	19.6	1999	21.0
1988	18.4	2000	18.5

FOCUS ON **11.3**

Name _____ Date _____

Practice

For use with pages 634A-634B

Find the mean and mean absolute deviation of the data.

1. 47, 52, 50, 54, 49, 45, 49, 50

2. 50, 101, 43, 116, 85, 73, 134, 125, 110, 98

3. 85, 87, 88, 89, 90, 92, 94, 95

4. 1, 4, 8, 7, 7, 2, 11, 5, 8, 7, 6, 8, 8, 5, 9

5. 49, 44, 50, 51, 47, 50, 48, 53

6. 15, 90, 54, 81, 66, 52, 73, 22, 28, 96

7. **Hockey** The following data are the total NHL goals scored in the 2009–2010 season for the top 10 players for each team.

Carolina Hurricanes: 30, 29, 21, 21, 14, 14, 11, 11, 9, 8
Chicago Blackhawks: 30, 25, 25, 24, 22, 20, 17, 17, 14, 10

a. Make a line plot and estimate the mean of each data set. Compare the distributions.

b. Find the mean and mean absolute deviation of each data set. Compare the results.

8. **Challenge** Consider the following data set: 13, 15, 17, 18, 19, 22, 22, 24, 25, 25.

a. Change some of the values in the data set so that the mean and range stay the same, but the mean absolute deviation gets larger. Explain your reasoning.

b. Change some of the values in the data set so that the mean and range stay the same, but the mean absolute deviation gets smaller. Explain your reasoning.

LESSON 11.4

Name _____ Date _____

Practice

For use with pages 635–639

A newspaper is conducting a survey to predict who will win the next mayoral election. Tell whether the sampling method is *random*, *systematic*, *stratified*, *convenience*, or *self-selected*.

1. Set up a phone number where people can call in their opinion.

2. Call every 100th person in the phone book.

3. Interview every fifth person that leaves a grocery store.

4. Interview 10 people from each neighborhood.

In Exercises 5 and 6, describe the population and tell what type of sampling method is used. Then tell whether the sample is likely to represent the population. Explain your answer.

5. A researcher wants to know the opinions that people in a state have about home computers. The researcher asks every third customer who enters a computer store in a mall whether they approve or disapprove of computers at home.

6. A writer for a newspaper wants to determine the most popular non-fiction book among residents in a town. The writer asks every other person leaving the local library what their favorite non-fiction book is.

7. A speaker at a seminar wants to know how well a speech was received by members of the audience. The speaker leaves the form shown on a table for members of the audience to complete after the speech.

a. Describe the population and the sampling method.

b. Is the questionnaire likely to represent the population? Explain why or why not.

1. Was the information communicated effectively?

2. What did you enjoy most about the speaker?

3. What did you enjoy least about the speaker?

In Exercises 8–10, tell whether the question is potentially biased. Explain your answer. If the question is biased, rewrite it so that it is not.

8. Do you support building an expensive new stadium while the old one is perfectly usable?

9. How many times a week do you exercise?

10. Don't you think our town should have a fun new park?

11. Researchers conducted a study to determine the average age of the people living in a city. They did so by recording the age of 200 people in the city. Tell whether the following statements, if true, would lower your confidence in the results of the study. Explain your answers.

LESSON 11.5

Name _____ Date _____

Practice

For use with pages 643–647

1. A survey of 300 randomly selected new parents finds that 99 new parents prefer brand A baby food. Predict how many new parents in a town of 2500 new parents prefer brand A baby food.

2. You interview a random sample of 100 residents in a town. Forty-two people say that raspberry is their favorite muffin flavor. There are 3000 people in the town. Predict how many people in the town would say that raspberry is their favorite muffin flavor.

3. Four surveys based on random samples of students in a school were conducted before a school student council election. The results are shown in the table along with the margin of error for each survey. For each election, predict a winner or tell whether the election is too close to call.

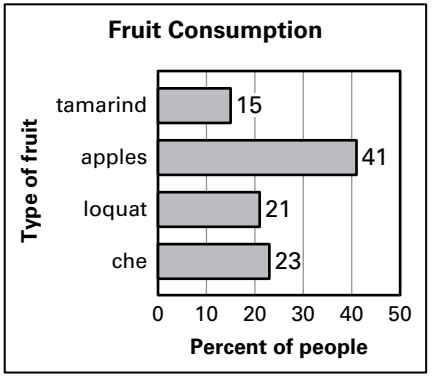
Position	Leading Candidate	Trailing Candidate	Margin of Error
President	52%	48%	±4%
Vice President	55%	45%	±4%
Secretary	51%	49%	±5%
Treasurer	53.5%	46.5%	±3%

4. A politician needs 750 signatures from people in town to run for office. You interview a random sample of 100 people in town. You find that 38 people say they would provide their signature. The town has 3200 people. Do you think enough people will provide their signatures? Justify your reasoning.

5. Review the newspaper article below which summarizes the results of a survey. How much trust do you have in the survey? Do you think the conclusions in the article are valid? Explain.

Tamarind, Che, and Loquat Becoming Common Fruits!

A recent survey of 150 people at the local market found more people in town eat tamarind, che, and loquat than eat traditional fruits, such as apples. The survey was conducted by Frank's Fruit Stand, a fruit seller who specializes in unusual fruit.



6. A town has 2500 residents. A survey finds that 92 residents out of a random sample of 575 residents have a red car. The margin of error for the survey

LESSON 11.5

Name _____ Date _____

Practice

For use with pages 647A–647B

1. The two-way table shows the results of a survey that asked high school seniors if they plan to attend senior prom.

	Response	
Gender	Yes	No
Male	58	42
Females	115	35

a. How many of those surveyed are female and plan to attend prom?

b. How many males were surveyed?

2. The two-way table shows the results of a survey that asked high school students how they get to school every morning.

	Class			
Response	**Freshmen**	**Sophomores**	**Juniors**	**Seniors**
Bus	82	52	20	11
Walk	25	17	8	5
Car	23	81	92	84

a. How many juniors take a car to school?

b. How many students that walk to school are freshmen?

c. Find and interpret the sum of each row and column in the two-way table.

3. **Survey** You randomly survey a group of elementary school students asking if they have siblings. The results are shown.

3rd graders: 15 have no siblings, 8 have one, 27 have more than one

4th graders: 18 have no siblings, 12 have one, 20 have more than one

5th graders: 10 have no siblings, 29 have one, 11 have more than one

a. Construct a two-way table. Include the row and column totals.

b. For each grade level, what percent of students have zero, have one, or have more than one sibling? Arrange the results in a two-way table.

4. **Challenge** 150 men and 250 women were asked in a survey "Do you subscribe to at least one magazine?" 16% of the men said yes and 42% of the women said no.

a. Of the people who took this survey, how many women do subscribe to at least one magazine?

b. How many people who do not subscribe to at least one magazine are men?

c. What percent of the total people who took this survey do subscribe to at least one magazine?

d. If you sell magazine subscriptions, which group of people would you target? Explain.