

11.5 Start Thinking

You are going to survey your classmates, asking them which video game system is their favorite. The students will have five choices, including “none.” Which of the following types of graphs could you choose to display the data? In your opinion, which is the best choice and why?

- bar graph
- box-and-whisker plot
- circle graph
- dot plot
- histogram
- line graph
- pictograph
- scatter plot
- stem-and-leaf plot

11.5 Warm Up

Determine whether the data is *discrete* or *continuous*. Explain.

1. a person’s height over time
2. the number of students at each basketball game

11.5 Cumulative Review Warm Up

Evaluate the function when $x = -1$ and 6 .

1. $f(x) = x - 5$
2. $h(x) = -x - 8$
3. $p(x) = -2 - 3x$
4. $v(x) = 13 + x + 6$

11.5 Practice A

In Exercises 1–4, tell whether the data are *qualitative* or *quantitative*.

Explain your reasoning.

1. basic costs of monthly Internet access
2. breeds of dogs at a kennel
3. apartment numbers in an apartment building
4. heights of students in a 1st grade class

In Exercises 5 and 6, choose an appropriate data display for the situation. Explain your reasoning.

5. the number of cars in the parking lot over a 30-day period
6. the distribution of students according to class

In Exercises 7 and 8, analyze the data and then create a display that best represents the data. Explain your reasoning.

7. **Average Temperature (degrees Fahrenheit)**

January	2	July	84
February	6	August	87
March	25	September	62
April	56	October	57
May	65	November	34
June	76	December	12

8. **Vegetable Plants in Your Garden**

Tomato	20	Green Pepper	10
Onion	25	Zucchini	6
Corn	20	Squash	7
Carrots	30	Cucumbers	10

11.5 Practice B

In Exercises 1–4, tell whether the data are *qualitative* or *quantitative*.

Explain your reasoning.

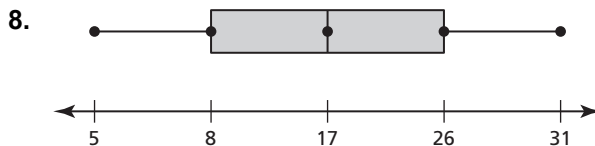
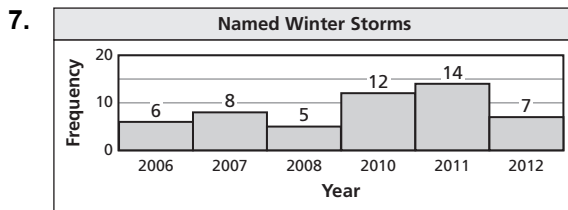
1. numbers of cans of vegetables at a food pantry
2. names of players on your school soccer team
3. balances in the savings accounts at a bank
4. numbers on the back of the jerseys of your school football team

In Exercises 5 and 6, choose an appropriate data display for the situation.

Explain your reasoning.

5. bowling scores for all of the students on the team
6. the price of a gallon of gas on January 1st over a 10-year period

In Exercises 7 and 8, describe how the graph is misleading. Then explain how someone might misinterpret the graph.

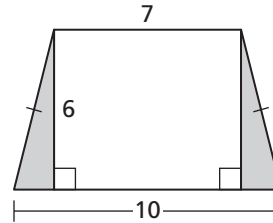


11.5 Enrichment and Extension

Geometric Probability

What is the chance that a needle dropped on a figure at random would hit the shaded region? Problems like this have become known as *geometric probability*.

Example: Find the probability that a randomly chosen point on the figure lies within the shaded region. Use the formula for the area of a trapezoid, $A = \frac{1}{2}(b_1 + b_2)h$, to find the total area of the figure. Then find the area of the shaded region by using the formula for the area of a triangle: $A = \frac{1}{2}bh$. The geometric probability is the area of the shaded region over the total area of the figure.

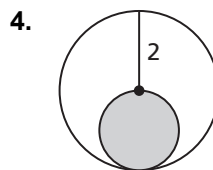
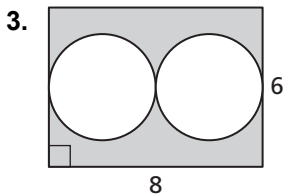
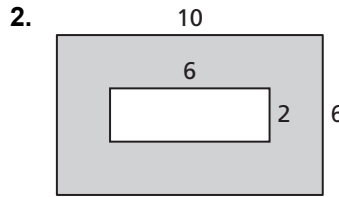
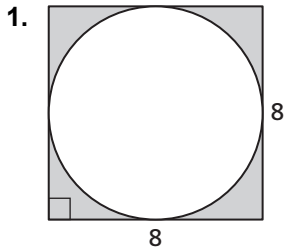


Area of figure: $A = \frac{1}{2}(10 + 7) \cdot 6 = 51$ square units

Area of triangles: $A = \frac{1}{2}(1.5)(6) = 4.5 \rightarrow 4.5 \cdot 2 = 9$ square units

Geometric probability: $\frac{9}{51} = \frac{3}{17} \approx 17.6\%$

Find the probability that a randomly chosen point on the figure lies within the shaded region. Round to the nearest tenth, when necessary.





11.5 Puzzle Time

What Goes Up But Never Comes Down?

Write the letter of each answer in the box containing the exercise number.

Tell whether the data are qualitative or quantitative.

1. prices of cell phones at a store
 Q. qualitative R. quantitative
2. student identification numbers
 E. qualitative F. quantitative
3. the favorite food of students in your class
 O. qualitative P. quantitative
4. ages of students in your class
 X. qualitative Y. quantitative

Choose the most appropriate data display for the situation.

5. the number of students entering kindergarten each year
 F. circle graph G. line graph H. dot plot
6. the favorite academic subject of students in your class
 A. circle graph B. box-and-whisker plot C. bar graph
7. the ages of students in your class
 T. circle graph U. stem-and-leaf plot V. scatter plot

4	3	7	1		6	5	2
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