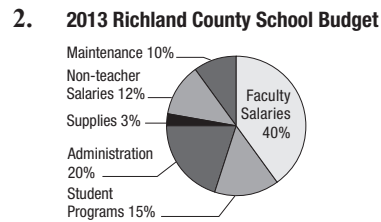
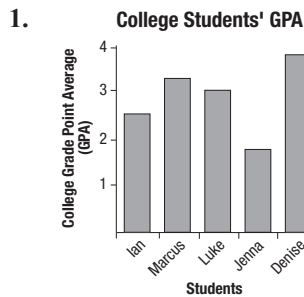


**Margin Exercise Answers**

## 7.3 Exercises

### Concept Check

**Fill-in-the-Blank.** Complete each sentence using information found in this section.

1. In a vertical bar graph, the categories of data are written along the \_\_\_\_\_ axis.
2. In a vertical bar graph, the bar for each category is to have a height that represents the \_\_\_\_\_ of the data for that category.
3. The final step in creating a bar graph is to make sure the bars have the same \_\_\_\_\_.
4. The first step in constructing a circle graph is to find the central \_\_\_\_\_ for each category.
5. In the creation of a circle graph, the central angle is found by multiplying the corresponding percent by \_\_\_\_\_ degrees.
6. The final step in constructing a circle graph is to label each sector with the \_\_\_\_\_ and corresponding \_\_\_\_\_ of each category.

**True/False.** Determine whether each statement is true or false. If a statement is false, explain how it can be changed so the statement will be true. (**Note:** There may be more than one acceptable change.)

7. In creating a vertical bar graph, a bar's width should vary based on the number it represents.
8. The first step in constructing a vertical bar graph is to draw a vertical and a horizontal axis.
9. Bar graphs can have either vertical or horizontal bars.
10. Titles are unnecessary for circle graphs.

## Applications

For each set of data, construct the specified graph.

1. Construct a bar graph that represents the following data.

Island	Area in Square Miles (nearest ten thousand)
Greenland	840,000
New Guinea	310,000
Borneo	290,000
Madagascar	230,000
Baffin	200,000
Sumatra	180,000
Honshu	90,000
Great Britain	90,000

2. Construct a bar graph that represents the following data.

Motion Picture	Box Office Gross (in millions of dollars)
Bad Boys for Life	204.4
1917	157.9
Sonic the Hedgehog	146.1
Jumanji: The Next Level	124.7
Star Wars: Episode IX - The Rise of Skywalker	124.5
Birds of Prey	84.2
Dolittle	77.0
Little Women	70.5
The Invisible Man	64.9
The Call of the Wild	62.3

Source: Information courtesy of Box Office Mojo. Used with permission. [www.boxofficemojo.com](http://www.boxofficemojo.com)

3. Construct a bar graph that represents the following data.

Building and City	Height (in stories)
Aon Center (Chicago)	80
Chrysler (NY)	77
Empire State (NY)	102
U.S. Bank Tower(LA)	73
John Hancock Center (Chicago)	100
Willis Tower (Chicago)	110
JPMorgan Chase Tower (Houston)	75
One Liberty Place (Philadelphia)	61

4. Construct a bar graph that represents the following data.

Population of Countries that  
Begin with the Letter L (2016  
Estimates, to nearest thousand)

Country	Population
Laos	7,019,000
Latvia	1,966,000
Lebanon	6,238,000
Lesotho	1,953,000
Liberia	4,300,000
Libya	6,542,000
Liechtenstein	38,000
Lithuania	2,854,000
Luxembourg	582,000

Source: CIA World Facebook

5. Construct a bar graph that represents the following data.

Notable Modern Bridges

Bridge and Location	Span (in meters)
Brooklyn (New York)	500
Bosporus (Istanbul)	1100
Fourth Road (Scotland)	1000
George Washington (New York)	1100
Golden Gate (California)	1300
Humber (England)	1400
Mackinac Straits (Michigan)	1200
Newport (Rhode Island)	500
Ponte 25 de Abril (Portugal)	1000
Verazano-Narrows (New York)	1300

6. Construct a bar graph that represents the following data.

World Population by Decade

Year	Total World Population
1960	3,039,451,023
1970	3,706,618,163
1980	4,453,831,714
1990	5,278,639,789
2000	6,082,966,429
2010	6,852,472,823
2020	7,756,873,419

Source: US Census Bureau

7. Construct a bar graph that represents the following data.

**Top 10 Selling Albums in 2020**

Album	Sales
Taylor Swift, <i>folklore</i>	1,276,000
BTS, <i>MAP OF THE SOUL : 7</i>	674,000
The Weekend, <i>After Hours</i>	480,000
Harry Styles, <i>Fine Line</i>	420,000
Billie Elish, <i>When We All Fall Asleep, Where Do We Go?</i>	348,000
Lady Gaga, <i>Chromatica</i>	331,000
Juice WRLD, <i>Legends Never Die</i>	301,000
Halsey, <i>Maniac</i>	301,000
Eminem, <i>Music To Be Murdered By</i>	287,000
Taylor Swift, <i>evermore</i>	283,000

Source: "Year-End Report U.S. 2020," MRC Data

8. Construct a circle graph that represents the following data.

**Percent of Population with Particular Blood Types**

Type of Blood	Percent of Population
O positive (O <sup>+</sup> )	38%
O negative (O <sup>-</sup> )	7%
A positive (A <sup>+</sup> )	34%
A negative (A <sup>-</sup> )	6%
B positive (B <sup>+</sup> )	9%
B negative (B <sup>-</sup> )	2%
AB positive (AB <sup>+</sup> )	3%
AB negative (AB <sup>-</sup> )	1%

Source: [AABB.org](http://AABB.org)

9. Construct a circle graph that represents the following data.

**Global Share of Total Energy Supply by Source, 2019**

Source of Energy	Percent
Oil	30.9%
Coal	26.8%
Natural Gas	23.2%
Biofuels	9.4%
Nuclear	5.0%
Hydro	2.5%
Other	2.2%

Source: Key World Energy Statistics, 2021.  
International Energy Agency.

10. Construct a circle graph that represents the following data. Divide each number of medals by the total number to get the corresponding percent for each country.

Total Medals Awarded to Top  
7 Countries, 2020 Summer  
Olympic Games (Tokyo)

Country	Number of Medals
United States	113
China	88
Russia	71
Great Britain	65
Japan	58
Australia	46
Italy	40
Total	481

Source: [Olympic.org](https://olympic.org)

11. Construct a circle graph that represents the following data.

2021 Distribution of  
Employment by Age

Age Range	Percent
16 to 19	3%
20 to 24	9%
25 to 34	23%
35 to 44	21%
45 to 54	20%
55 to 64	17%
65 and over	7%

Source: Bureau of Labor Statistics

12. Construct a circle graph that represents the following data.

Cholesterol Levels of 100 Students

Cholesterol Level	Number of Students
Recommended	35
Borderline	15
Moderate Risk	40
High Risk	10

13. Construct a circle graph that represents the following data.

College Enrollment by Race/  
Ethnicity for New Freshman

Ethnicity	Percent
White	45
Hispanic or Latino	22
Asian/Pacific Islander	10
Black	12
2 or more races	4
Unknown	7

## Writing & Thinking

14. While most graphs can be created through the use of a computer, give at least one benefit from constructing a graph yourself.
15. List three mistakes a person might make when constructing a graph.

## Collaborative Learning

16. With the class separated into teams of two to four students, find access to a computer and a computer spreadsheet program, such as Excel, and enter the following data related to crop production on farms. Have the program find the mean and median for each category of crop for the years listed here. Also, have the program draw a bar graph for each category of crop by using the years listed here on the base line. Each team leader is to discuss how the team learned to use the program and bring printouts of the graphs. A general classroom discussion related to the power and efficiency of the computer should follow.

Crop Production in the U.S. (in Million Bushels)

Year	Corn	Sorghum	Barley	Oats	Rye
2013	13,925	389	215	65.88	7.67
2014	14,215	433	182	69.68	7.19
2015	13,601	597	218	89.54	11.62
2016	15,148	480	199	64.77	13.45

Source: [usda.mannlib.cornell.edu/MannUsda/homepage.do](http://usda.mannlib.cornell.edu/MannUsda/homepage.do)