CHAPTER 9 Graphing and Statistics

Section 9.1

TERMINOLOGY 9.1

For each of the following terms, provide 1) a definition in your own words, 2) the formal definition (as provided by your text or instructor), and 3) an example of the term using a drawing or problem. A sample filled-out form is available in the Introduction.

Bar Graph

Your definition	
Formal definition	
Example	

Circle Graph

Your definition	
Formal definition	
Example	

Line Graph

Your definition	
Formal definition	
Example	

Pictograph

Your definition	
Formal definition	
Example	

READING AND SELF-DISCOVERY QUESTIONS 9.1

1. Would a pictograph be best used to graph multiple things, or a single item (such as a line graph does?)

   A pictograph would be best used to show multiple items.

2. What kind of graph should be used to divide a whole quantity into parts represented by percentages?

   A pie chart should be used.

3. What is the primary use of double-bar graphs?

   A double-bar graph is used to compare one group with another group, when both are measured in the same units.

4. What type of graph could be used to compare two or more sets of data?

   A bar graph (double, triple, etc).

5. When constructing bar graphs or line graphs, what must be true about the intervals on both the horizontal and vertical lines?

The intervals must be equal to each other.

CRITICAL THINKING QUESTIONS 9.1

1. Compare and contrast the best uses for line graphs and bar graphs.

The best use of line and bar graphs is to show comparisons. The bar graph is better for comparing many groups, while the line graph shows increases and decreases more clearly.

2. Compare and contrast the best uses for pictographs and pie graphs.

Pictographs and pie graphs give a nice visual representation. The pictographs give a way to compare sizes, while pie charts are much more difficult to to use in comparisons.

3. Give a real life example of when a circle graph would represent the data better than a bar graph. Explain why.

A circle graph never represents data better than a bar graph. Bar graphs are linear, and easier to interpret. Circle graphs are based on area and are much harder to understand.

4. WebQuest: Search online for free web sites that construct circle graphs or bar graphs from your data. List the URL of at least one.

Student answers will vary.

DEMONSTRATE YOUR UNDERSTANDING 9.1

1. What is the sum of all the percents on a circle graph?

The sum of all the percents must be 100%.

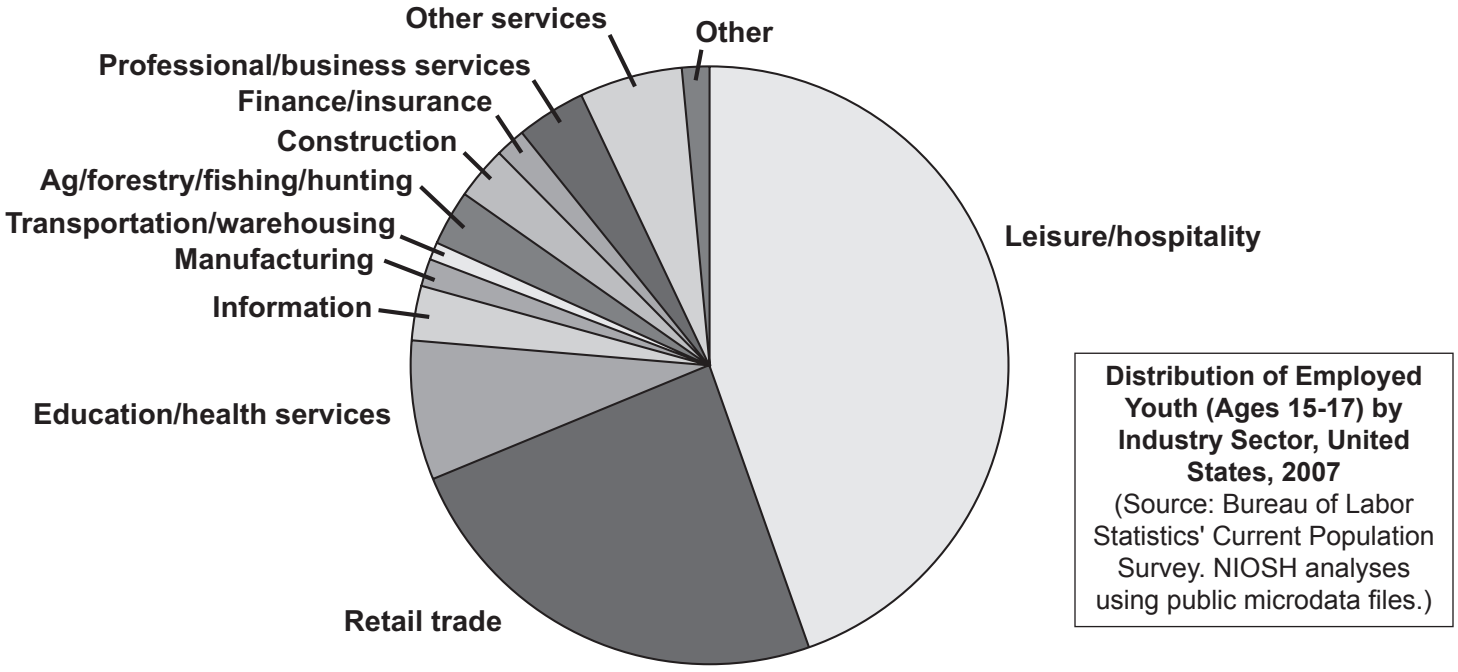
2. What does it mean if two lines cross on a comparison line graph?

The value of one quantity is equal to the value of the other quantity at the point where the graphs cross.

IDENTIFY AND CORRECT THE ERRORS 9.1

In the second column, identify the error(s) you find in each of the following worked solutions. Describe the error made in the second column. Solve the problem correctly in the third column.

Problem	Describe Error	Correct Process
1. Based on the graph below, approximately what fraction of youth are employed *outside* of the leisure/hospitality industries? **Worked Solution** *(What is wrong here?)* **slightly less than $\frac{3}{4}$**	**Student did not correctly approximate the slice for Leisure/hospitality. Possibly used the Leisure/ hospitality and the Retail trade slices did not see the word outside.**	**Slightly less than ½.**
Problem	**Describe Error**	**Correct Process**
2. What other type of graph would effectively display the data contained in the graph below? **Worked Solution** *(What is wrong here?)* **a line graph**	**Student selected the wrong graph type. Line graphs are good at showing change, but not at showing fractional parts.**	**A bar graph or chart would be another type of graph that would effectively display the data contained in the pie chart.**



Distribution of Employed Youth (Ages 15-17) by Industry Sector, United States, 2007
(Source: Bureau of Labor Statistics' Current Population Survey. NIOSH analyses using public microdata files.)