

Activity 7

Eating Out

Concepts/Skills:

Graphing, percentages, angle measure, problem solving

Calculator:

TI-30Xa SE or TI-34

Objectives:

Students examine data, make a graph to represent the data, and interpret the data.

Materials

Circle graph paper, protractors, compasses

Getting Students Involved

Food always gets the attention of students, especially in middle grades.

- ◆ Who likes to eat? What fast food restaurants are the most popular?
- ◆ How do we know whether chain restaurants are successful? *Possible answers: Based on sales or on number of outlets.*

Making Mathematical Connections

Begin with a discussion of statistics and graphs.

- ◆ Why do we need to know about statistics? *So we can make informed decisions using data.*
- ◆ What are the steps in a statistical investigation? *Ask a question, gather data, draw conclusions, make decisions based on the conclusions.*
- ◆ Why do people make graphs? *To make it easier to see patterns in data so that conclusions are better.*

If necessary, review how to make a circle graph. Be sure that students know they need to find the sum of all data values, calculate the percentage each data value is of the total, and then convert the percentages to degrees so that the total number of degrees for each sector is 360° (the number of degrees in a circle).

Carrying Out the Investigation

Students can complete this work faster if they work in teams and split up the work.

Exercises 7, 8, and 9 are optional. Students will likely be interested in carrying out these activities, but they are not central to learning how to use calculators for making graphs.

Making Sense of What Happened

- ◆ Why do the three circle graphs present different pictures of the relative sizes of the restaurants? *Because different characteristics are being graphed.*
- ◆ Which way do you think is the most accurate representation of relative size? *Answers will vary.*

Continuing the Investigation

Ask students to find data about fast food chains for their city or state.

- ◆ Why might the data be different in a state as compared to the nation? *If a fast food restaurant has its home office in a state, there might be more of its outlets in that state.*

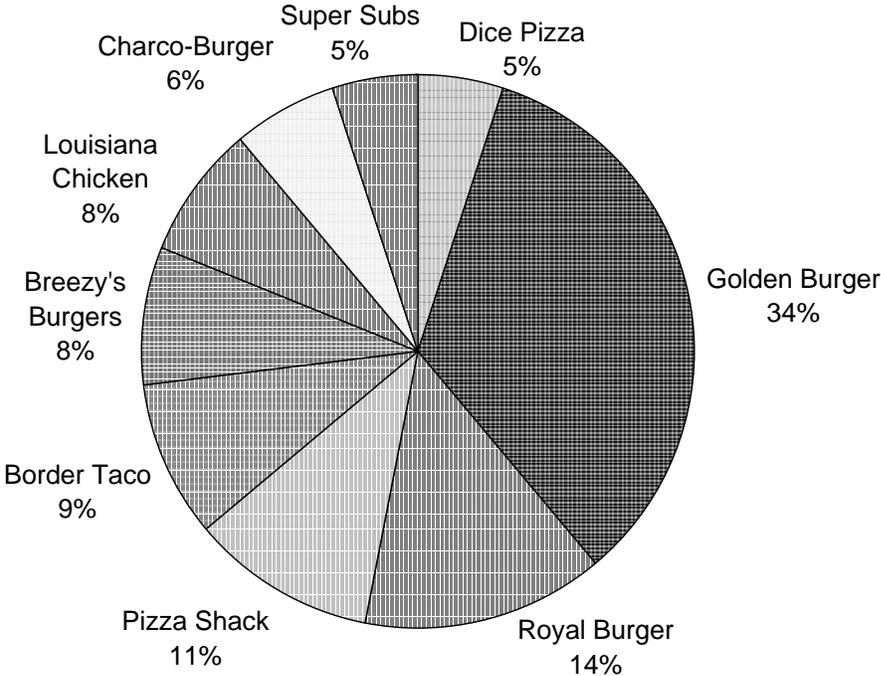
Solutions

1. Let students reach consensus about their choices of true or false for statements **1** through **4**.
5. Sales per outlet (rounded to nearest dollar):

Golden Burger	\$1,033,609
Royal Burger	\$868,034
Pizza Shack	\$569,832
Border Taco	\$1,011,494
Breezy's Burgers	\$931,749
Louisiana Chicken	\$361,681
Charco-Burger	\$953,553
Super Subs	\$257,604
Dice Pizza	\$392,857

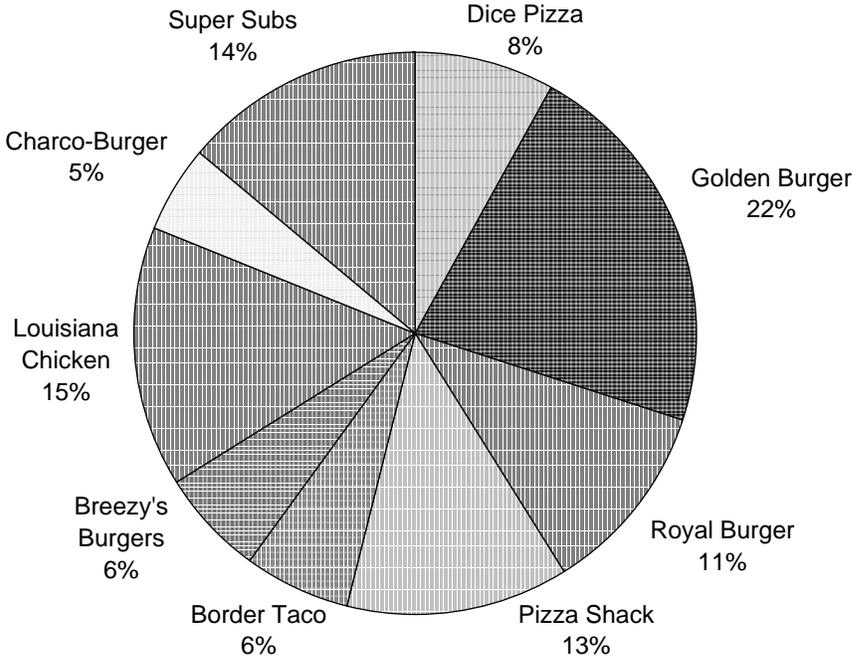
6.

Approximate Sales

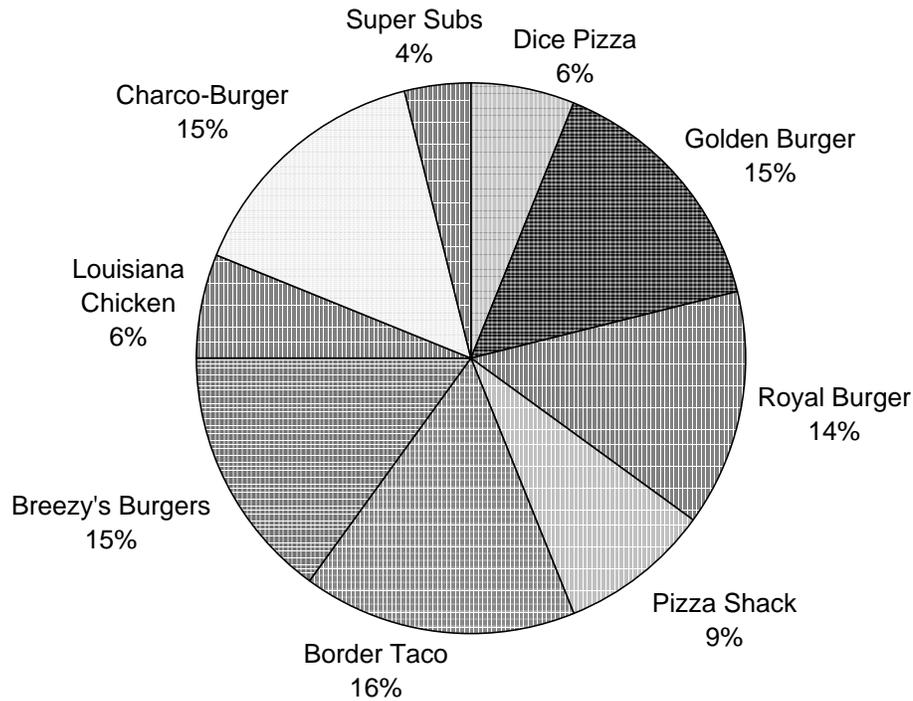


7.

Number of Outlets



8.

Sales/Outlet

9. The graphs are alike because they all have the same number of sectors, and all add up to 100%.

The graphs are different because the size of the sector for each company is different.

Super Subs looks biggest in the graph for question 7, *Number of Outlets*.

10. The answers will vary for questions 10, 11, and 12.