

## CIRCLE GRAPHS

A circle graph (or pie chart) is a diagram that represents proportions of categorized data as parts of a circle. Each sector or wedge represents a percent or fraction of the circle. The fractions or percents must total 1, or 100%. Since there are 360 degrees in a circle, the size of each sector (in degrees) is found by multiplying the fraction or percent by 360 degrees.

For additional information, see the Math Notes box in Lesson 7.1.1 of the *Core Connections, Course 3* text.

### Example 1

Ms. Sallee's class of 30 students was surveyed about the number of hours of homework done each night and here are the results:

less than 1 hour	3 students
1 to 2 hours	9 students
2 to 3 hours	12 students
3 to 4 hours	4 students
more than 4 hours	2 students

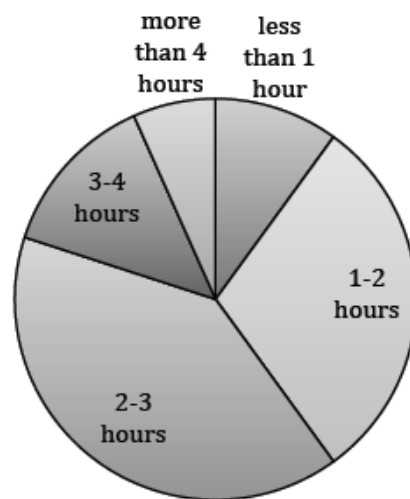
The proper size for the sectors is found as follows:

$$< 1: \frac{3}{30} \cdot 360^\circ = 36^\circ; \quad 1-2: \frac{9}{30} \cdot 360^\circ = 108^\circ$$

$$2-3: \frac{12}{30} \cdot 360^\circ = 144^\circ; \quad 3-4: \frac{4}{30} \cdot 360^\circ = 40^\circ$$

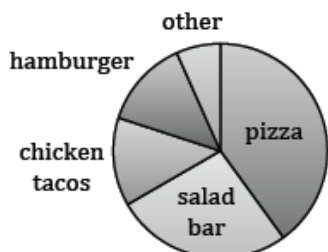
$$> 4: \frac{2}{30} \cdot 360^\circ = 20^\circ$$

The circle graph is shown at right.



## Example 2

The 800 students at Central Middle School were surveyed to determine their favorite school lunch item. The results are shown below.



Use the circle graph at left to answer each question.

- Which lunch item was most popular?
- Approximately how many students voted for the salad bar?
- Which two lunch items appear to have equal popularity?

**Answers:** a. pizza is the largest sector; b.  $\frac{1}{4} \cdot 800 = 200$  ;  
c. hamburger and chicken tacos have the same size sectors

## Problems

For problems 1 through 3 use the circle graph at right. The graph shows the results of the 1200 votes for prom queen.

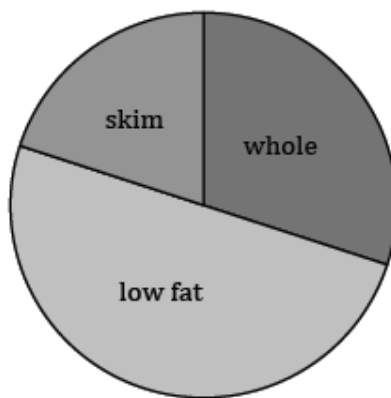
- Who won the election?
  - Did the person who won the election get more than half of the votes?
  - Approximately how many votes did Camille receive?
- 
- A pie chart representing the results of 1200 votes for prom queen. The chart is divided into four sectors: Alicia (the largest sector, approximately 45%), Barbara (approximately 25%), Camille (approximately 15%), and Dominique (approximately 15%).
- Of the milk consumed in the United States, 30% is whole, 50% is low fat, and 20% is skim. Draw a circle graph to show this data.

5. On an average weekday, Sam's time is spent as follows: sleep 8 hours, school 6 hours, entertainment 2 hours, homework 3 hours, meals 1 hour, and job 4 hours. Draw a circle graph to show this data.
  
6. Records from a pizza parlor show the most popular one-item pizzas are: pepperoni 42%, sausage 25%, mushroom 10%, olive 9% and the rest were others. Draw a circle graph to show this data.
  
7. To pay for a 200 billion dollar state budget, the following monies were collected: income taxes 90 billion dollars, sales taxes 74 billion dollars, business taxes 20 billion dollars, and the rest were from miscellaneous sources. Draw a circle graph to show this data.
  
8. Greece was the host country for the 2004 Summer Olympics. The Greek medal count was 6 gold, 6 silver, and 4 bronze. Draw a circle graph to show this data.

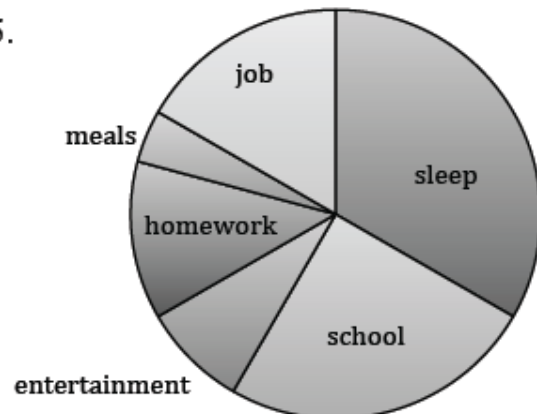
## Answers

1. Alicia
2. No Alicia's sector is less than half of a circle.
3. Approximately 240 votes

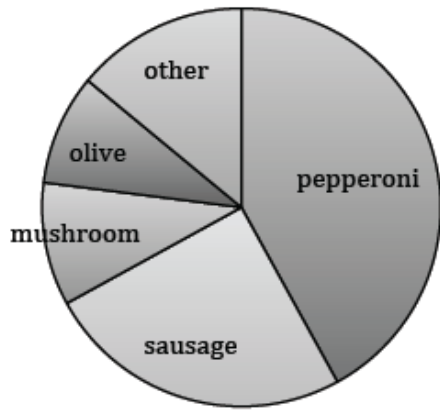
4.



5.



6.



7.

