Print in black and white or color.
Graph Data: Skill 5 - 27D

Circle Graphs   test question answer is 0.25 x 180 = 45

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1. Tom counted each marble in his collection and put the marbles into groups by color. He put the data in this circle graph. Use the graph to answer the questions.

a. If Tom's collection has 180 marbles in all, how many marbles are red?

b. What fraction of his marble collection is green?

c. What fraction of his marble collection is green and yellow?

Tom's Marble Collection Colors

Green 25%   Red 25%
Yellow 25%   Blue 25%

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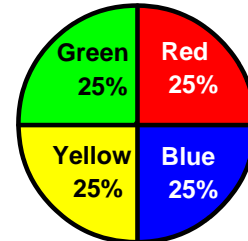
2. The circle graph below shows how Mr. Cole's monthly income is spent.

a. Which expense requires the greatest portion of Mr. Cole's income?

b. What percentage of Mr. Cole's income is spent on food?

c. Which two expenses equal half of all his expenses?

d. What percentage of his income is spent on food and medical expenses?

Mr. Cole's Expenses

Other 5%
Medical 15%
Entertainment 20%
Insurance 10%
Rent 30%
Food 20%

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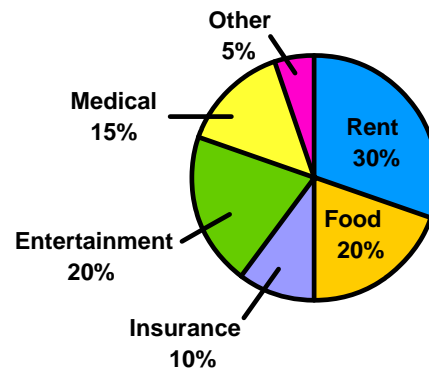
3. Maria counted the fish in her aquarium and made this circle graph to show the data.

a. If Maria has 160 fish in all, how many fish are cherry barbs?

b. If there are 160 fish in all, how many fish are black mollies and guppies?

c. Which group has more fish?

    1. neon tetras and black mollies

    2. cherry barbs and guppies

    3. neither, the two groups are equal.

Maria's Aquarium Fish

Cherry Barb 10%
Neon Tetra 25%
Guppy 40%
Black Molly 25%
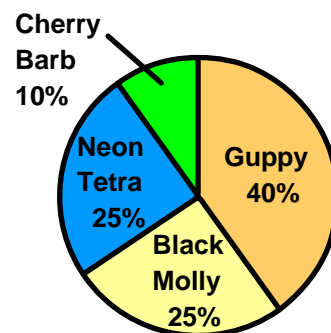
Graph Data: Skill 5 - 27D

Circle Graphs

4. A principal at an elementary school surveyed her students to find out how each student commutes to school each day. The data is shown in this circle graph.

a. How do most students commute to school?

b. If there are 1,000 students in the survey in all, how many walk to school?

c. What percentage of students commute to school in a car or bus?

d. If there are 1,000 students in the survey in all, how many students commute on a bus?

How Students Commute to School

Walk 10%
Bike 20%
Bus 45%
Car 25%
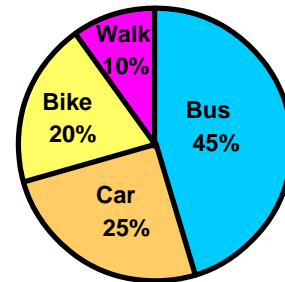
5. The circle graph below shows how Ms Grayson's monthly income is spent.

a. What fraction of her income is spent on groceries?

b. What fraction of her income is spent on her car?

c. If Ms Grayson earns $4,000 per month, how much does she spend on her car?

**d**. If Ms Grayson earns $4,000 per month, how much does she spend on "other" expenses?

Ms Grayson's Monthly Expenses
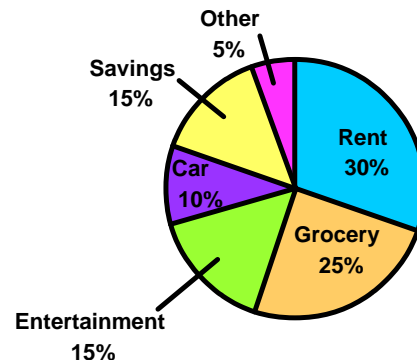
Other 5%
Savings 15%
Car 10%
Rent 30%
Grocery 25%
Entertainment 15%

6.
a. What fraction of the total vote was for a dog as the favorite pet?

b. If 360 students voted, how many students voted for fish?

c. If 180 students voted, how many students voted for cats?

d. If 160 students voted, how many students voted for a snake?

Favorite Pet

Dog 50%
Fish 15%
Turtle 10%
Cat 20%
Snake 5 %
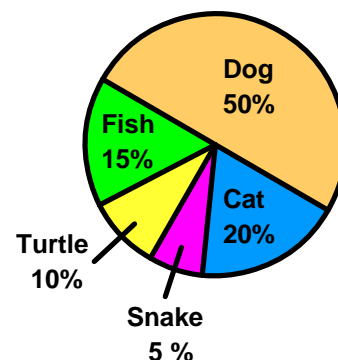
Graph Data: Skill 5 - 27D

Circle Graphs

Directions: Make a circle graph using the data. The first one is done for you.

1. The table shows the results of a student survey about favorite kinds of pets.

Pet	Percent of Total Votes
Dog	40%
Cat	20%
Parakeet	30%
Lizard	10%

Step 1

Multiply each percent by 360° to find each angle to draw in the circle graph.

Dog	0.40 x 360° = 144°
Cat	0.20 x 360° = 72°
Parakeet	0.30 x 360° = 108°
Lizard	0.10 x 360° = 36°

Step 2

Use your protractor to draw each angle from step 1.

Label each section and label the circle graph with the title, "Favorite Pet".

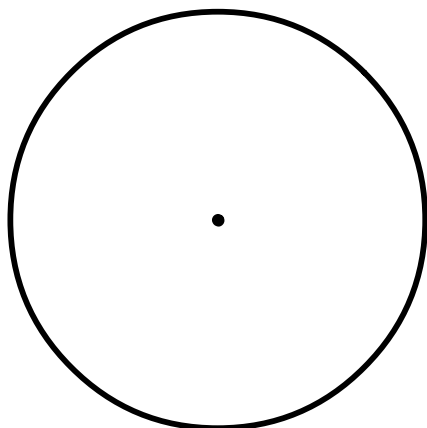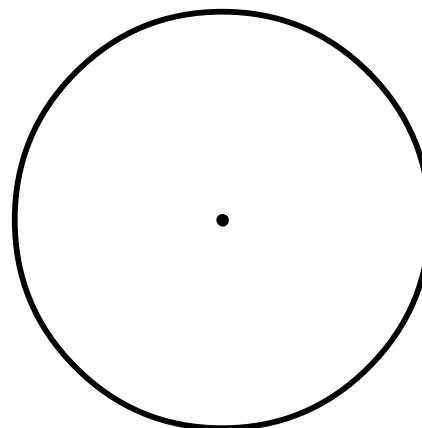Complete the circle graph as shown.
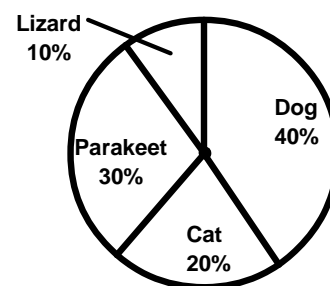
Favorite Pet

2. The table shows the results of a student survey about favorite kinds of sports.

Sport	Percent of Total Votes
Football	30%
Baseball	10%
Soccer	50%
Swimming	10%

3. The table shows the results of a student survey about favorite kinds of snacks.

Snack	Percent of Total Votes
Chips	10%
Apple	40%
Carrot	30%
Orange	20%

Answer Key Skill 5 - 27D

Question 1

a. If Tom's collection has 180 marbles in all, how many marbles are red?	b. What fraction of his marble collection is green?	c. What fraction of his marble collection is green and yellow?
0.25 x 180 = 45	$\dfrac{25}{100} = \dfrac{1}{4}$	$\dfrac{50}{100} = \dfrac{1}{2}$

Question 2

a. Which expense requires the greatest portion of Mr. Cole's income?	b. What percentage of Mr. Cole's income is spent on food?	c. Which two expenses equal half of all his expenses?	d. What percentage of his income is spent on food and medical expenses?
rent	20%	rent and food	20% + 15% = 35%

Question 3

a. If Maria has 160 fish in all, how many fish are cherry barbs?	b. If there are 160 fish in all, how many fish are black mollies and guppies?	c. Which group has more fish?	1. neon tetras and black mollies 2. cherry barbs and guppies 3. neither, the two groups are equal.
0.1 x 160 = 16	25% + 40% = 65% 0.65 x 160 = 104		neither, the two groups are equal

Question 4

a. How do most students commute to school?	b. If there are 1,000 students in the survey in all, how many walk to school?	c. What percentage of students commute to school in a car or bus?	d. If there are 1,000 students in the survey in all, how many students commute on a bus?
bus	0.1 x 1,000 = 100	25% + 45% = 70%	0.45 x 1,000 = 450

Question 5

a. What fraction of her income is spent on groceries?	b. What fraction of her income is spent on her car?	c. If Ms Grayson earns $4,000 per month, how much does she spend on her car?	d. If Ms Grayson earns $4,000 per month, how much does she spend on "other" expenses?
$0.25 = \dfrac{25}{100} = \dfrac{1}{4}$	$0.1 = \dfrac{10}{100} = \dfrac{1}{10}$	0.1 x $4000 = 400	0.05 x 4000 = 200

Question 6

a. What fraction of the total vote was for a dog as the favorite pet?	b. If 360 students voted, how many students voted for fish?	c. If 180 students voted, how many students voted for cats?	d. If 160 students voted, how many students voted for a snake?
$0.5 = \dfrac{50}{100} = \dfrac{1}{2}$	0.15 x 360 = 54	0.2 x 180 = 36	0.05 x 160 = 8