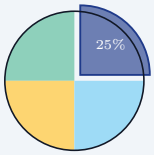
Pie Graphs

Name: _____	Date: _____	Score: _____ / 18

Quick Review and Helpful Hints

A pie (circle) graph shows parts of a whole. The whole circle is 100%, which equals $360°$. To find the amount for a slice, multiply its percent (as a decimal) by the total. To find a slice's central *angle*, multiply its percent by $360°$. All the slices add up to 100%.

▷ **Example:** In a survey of 200 people, 25% chose pizza. How many people chose pizza? **Work:** Change 25% to 0.25 and multiply by the total: 0.25×200. ★ **Answer:** 50 people

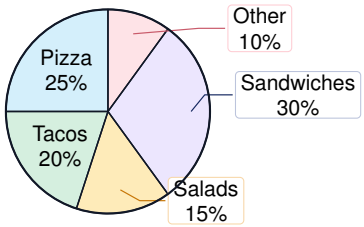


Whole circle $= 100\% = 360°$.

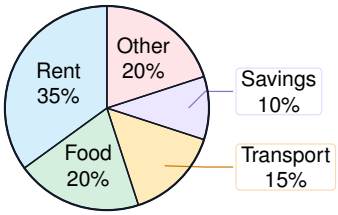
Practice Problems

Use each circle graph. Find amounts, percents, ratios, and central angles.

Lunch choices: 240 students



Monthly budget: $1,800



1. How many total students were surveyed? _____
2. How many students chose pizza? _____
3. How many students chose tacos? _____
4. How many students chose salads? _____
5. How many students chose sandwiches? _____
6. How many students chose other lunches? _____
7. How many students chose pizza or tacos? _____
8. What fraction of the students chose salads? _____
9. What central angle represents pizza? _____
10. What central angle represents sandwiches? _____
11. What percent chose something other than Other? _____
12. What is the ratio of tacos to pizza? _____
13. How many dollars are budgeted for rent? _____
14. How many dollars are budgeted for food? _____
15. How many dollars are budgeted for transportation? _____
16. How many dollars are budgeted for savings? _____
17. How many dollars are budgeted for food and other combined? _____
18. What central angle represents savings? _____

Answer Keys

1. 240	**7.** 108	**13.** \$630
2. 60	**8.** $\frac{3}{20}$	**14.** \$360
3. 48	**9.** 90°	**15.** \$270
4. 36	**10.** 108°	**16.** \$180
5. 72	**11.** 90%	**17.** \$720
6. 24	**12.** $4:5$	**18.** 36°

Step-by-Step Explanations

1. For the first chart, the total is given right in the title: "Lunch choices: 240 students." The whole circle represents all 240 students, so no calculation is needed for this one.

2. Pizza is 25% of the lunch chart. Change 25% to 0.25 and multiply by the total number of students: $0.25 \times 240 = 60$, so 60 students chose pizza.

3. Tacos are 20% of the 240 students. Since $20\% = 0.20$, multiply $0.20 \times 240 = 48$, so 48 students chose tacos.

4. Salads are 15% of the group. Use the same percent-of-a-total idea: $0.15 \times 240 = 36$, so 36 students chose salads.

5. Sandwiches are the largest slice at 30%. Multiply 0.30 by the total, $0.30 \times 240 = 72$, so 72 students chose sandwiches.

6. The Other slice is 10% of the students. Because 10% means one tenth, $0.10 \times 240 = 24$, so 24 students chose other lunches.

7. For pizza or tacos, add the two categories because either choice is allowed: pizza is 60 students and tacos is 48 students, so $60+48 = 108$ students.

8. The salad slice is 15% of the circle. Write 15% as $\frac{15}{100}$ and simplify by dividing by 5: $\frac{15}{100} = \frac{3}{20}$.

9. A whole circle has 360°, and pizza is 25% of the circle. Multiply $0.25 \times 360^\circ = 90^\circ$, so the pizza sector is a right angle.

10. Sandwiches are 30% of the circle. To find the central angle, multiply the percent as a decimal by 360°: $0.30 \times 360^\circ = 108^\circ$.

11. The only students not counted are in the Other slice, which is 10%. Since the full chart is 100%, the percent that chose something other than Other is $100\% - 10\% = 90\%$.

12. Use the percents for the ratio because both categories come from the same total. Tacos to pizza is $20:25$, and dividing both numbers by 5 gives $4:5$.

13. In the budget chart, rent is 35% of the monthly total of \$1,800. Multiply $0.35 \times 1800 = 630$, so \$630 is budgeted for rent.

14. Food is 20% of the \$1,800 budget. Calculate $0.20 \times 1800 = 360$, so \$360 is budgeted for food.

15. Transportation is 15% of the monthly budget. Multiply $0.15 \times 1800 = 270$, so the transportation amount is \$270.

16. Savings is 10% of the budget, which is one tenth of the total. One tenth of \$1,800 is $0.10 \times 1800 = 180$, so \$180 is saved.

17. Food and Other are each 20%, so together they are 40% of the budget. Multiply $0.40 \times 1800 = 720$, so the combined amount is \$720.

18. The savings slice is 10% of the circle. A full circle is 360°, so $0.10 \times 360^\circ = 36^\circ$ for the savings central angle.

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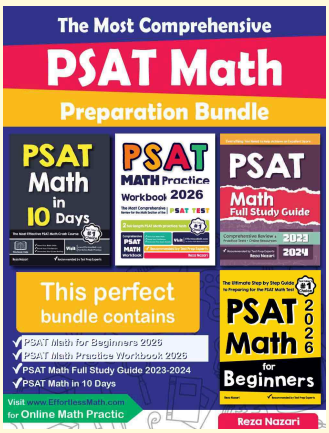

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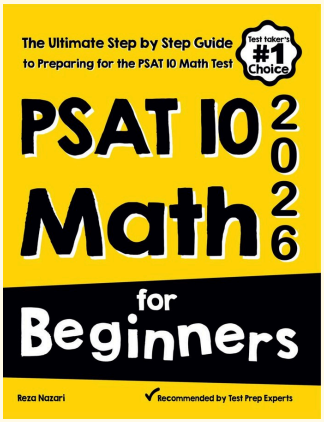

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