

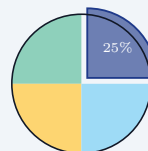
Pie Graphs

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

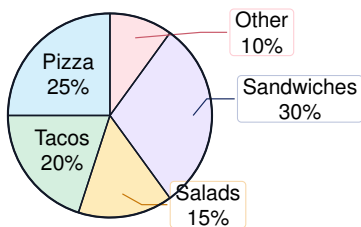


Whole circle = 100% = 360°.

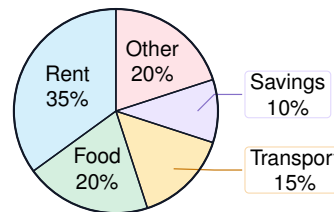
◆ Practice Problems

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

Lunch choices: 240 students



Monthly budget: \$1,800



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