

Circle Graphs

Name: _____ Date: _____ Score: _____ / 24

Q Quick Review

A **circle graph** (or pie chart) shows how a whole is divided into **parts**. The whole circle is 100%, and it is also 360° . Each **sector** (slice) stands for one part. To find the size of a slice in degrees, multiply its fraction of the whole by 360° — for example, $\frac{1}{4}$ of the circle is $\frac{1}{4} \times 360^\circ = 90^\circ$. To find the actual count a slice represents, multiply its **percent** by the **total**. All the sectors together must add up to 100% and to 360° .

◊ **Example:** In a circle graph, a slice is 25% of the circle. Find its angle in degrees, and the count it represents if the total is 200 people.

⇒ Start with the angle. The whole circle is 360° , and this slice is 25%, so its angle is $0.25 \times 360^\circ = 90^\circ$. Now the count: 25% of 200 people is $0.25 \times 200 = 50$. So the slice is a 90° sector and stands for 50 people.

Answer: 90° ; 50 people

PRACTICE

Use the circle graph facts to find each value.

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| 1. Angle of a 50% slice _____ | 12. 50% of 360 people _____ |
| 2. Angle of a 25% slice _____ | 13. 10% of 360 people _____ |
| 3. Angle of a 10% slice _____ | 14. 40% of 200 people _____ |
| 4. Angle of a 20% slice _____ | 15. 15% of 80 people _____ |
| 5. Angle of a 75% slice _____ | 16. 30% of 60 people _____ |
| 6. Angle of a $\frac{1}{4}$ slice _____ | 17. A circle graph shows 40% and 35%. What percent is the last slice? _____ |
| 7. Angle of a $\frac{1}{2}$ slice _____ | 18. Two slices are 90° and 120° . What is the third slice's angle? _____ |
| 8. Angle of a $\frac{1}{3}$ slice _____ | 19. A 180° slice is what fraction of the circle? _____ |
| 9. Angle of a $\frac{1}{6}$ slice _____ | 20. A 90° slice is what percent of the circle? _____ |
| 10. Angle of a $\frac{1}{5}$ slice _____ | |
| 11. 25% of 360 people _____ | |

◆ Word Problems

21. A circle graph of 200 students' favorite subjects shows Math 30%, Science 25%, Reading 25%, and Art 20%. How many students chose Math? _____
22. In a circle graph of how Jordan spends 24 hours, sleep is $\frac{1}{3}$ of the circle. How many hours is that, and what is the angle of the sleep sector? _____
23. A circle graph of 80 pets shows Dogs 50%, Cats 25%, and Other the rest. How many pets are in the "Other" category? _____
24. A survey circle graph has three slices. Walking is 90° , Biking is 90° , and Bus is the rest. What percent of students take the bus? _____



Answer Keys

- | | |
|--------------------------------------|--|
| 1. <input type="text" value="180°"/> | 13. <input type="text" value="36"/> |
| 2. <input type="text" value="90°"/> | 14. <input type="text" value="80"/> |
| 3. <input type="text" value="36°"/> | 15. <input type="text" value="12"/> |
| 4. <input type="text" value="72°"/> | 16. <input type="text" value="18"/> |
| 5. <input type="text" value="270°"/> | 17. <input type="text" value="25%"/> |
| 6. <input type="text" value="90°"/> | 18. <input type="text" value="150°"/> |
| 7. <input type="text" value="180°"/> | 19. <input type="text" value="1/2"/> |
| 8. <input type="text" value="120°"/> | 20. <input type="text" value="25%"/> |
| 9. <input type="text" value="60°"/> | 21. <input type="text" value="60 students"/> |
| 10. <input type="text" value="72°"/> | 22. <input type="text" value="8 hours; 120°"/> |
| 11. <input type="text" value="90"/> | 23. <input type="text" value="20 pets"/> |
| 12. <input type="text" value="180"/> | 24. <input type="text" value="50%"/> |

Step-by-Step Explanations

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| <p>1. $0.50 \times 360^\circ = 180^\circ$ — exactly half the circle.</p> <p>2. $0.25 \times 360^\circ = 90^\circ$ — a quarter of the circle.</p> <p>3. $0.10 \times 360^\circ = 36^\circ$.</p> <p>4. $0.20 \times 360^\circ = 72^\circ$.</p> <p>5. $0.75 \times 360^\circ = 270^\circ$ — three quarters of the circle.</p> <p>6. $\frac{1}{4} \times 360^\circ = 90^\circ$.</p> <p>7. $\frac{1}{2} \times 360^\circ = 180^\circ$.</p> <p>8. $\frac{1}{3} \times 360^\circ = 120^\circ$.</p> <p>9. $\frac{1}{6} \times 360^\circ = 60^\circ$.</p> <p>10. $\frac{1}{5} \times 360^\circ = 72^\circ$.</p> <p>11. $0.25 \times 360 = 90$ people.</p> <p>12. $0.50 \times 360 = 180$ people.</p> <p>13. $0.10 \times 360 = 36$ people.</p> | <p>14. $0.40 \times 200 = 80$ people.</p> <p>15. $0.15 \times 80 = 12$ people.</p> <p>16. $0.30 \times 60 = 18$ people.</p> <p>17. All slices add to 100%: $100 - 40 - 35 = 25\%$.</p> <p>18. All angles add to 360°: $360 - 90 - 120 = 150^\circ$.</p> <p>19. $\frac{180}{360} = \frac{1}{2}$ of the circle.</p> <p>20. $\frac{90}{360} = \frac{1}{4} = 25\%$.</p> <p>21. Math is 30% of the 200 students. So $0.30 \times 200 = 60$ students chose Math.</p> <p>22. Sleep is $\frac{1}{3}$ of 24 hours: $\frac{1}{3} \times 24 = 8$ hours. Its angle is $\frac{1}{3} \times 360^\circ = 120^\circ$.</p> <p>23. Dogs and Cats are $50\% + 25\% = 75\%$, so "Other" is 25%. Then $0.25 \times 80 = 20$ pets.</p> <p>24. Walking and Biking together are $90^\circ + 90^\circ = 180^\circ$, leaving $360^\circ - 180^\circ = 180^\circ$ for Bus. That is $\frac{180}{360} = 50\%$.</p> |
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