Circle Graphs

Name: _____ Date: _____ Score: _____ / 24

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 $\frac{1}{4} \times 360° = 90°$. 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 $0.25 \times 360° = 90°$. 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.

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

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? _____

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Answer Keys

1. $\boxed{180^\circ}$
2. $\boxed{90^\circ}$
3. $\boxed{36^\circ}$
4. $\boxed{72^\circ}$
5. $\boxed{270^\circ}$
6. $\boxed{90^\circ}$
7. $\boxed{180^\circ}$
8. $\boxed{120^\circ}$
9. $\boxed{60^\circ}$
10. $\boxed{72^\circ}$
11. $\boxed{90}$
12. $\boxed{180}$
13. $\boxed{36}$
14. $\boxed{80}$
15. $\boxed{12}$
16. $\boxed{18}$
17. $\boxed{25\%}$
18. $\boxed{150^\circ}$
19. $\boxed{\frac{1}{2}}$
20. $\boxed{25\%}$
21. $\boxed{60 \text{ students}}$
22. $\boxed{8 \text{ hours}; \ 120^\circ}$
23. $\boxed{20 \text{ pets}}$
24. $\boxed{50\%}$

Step-by-Step Explanations

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

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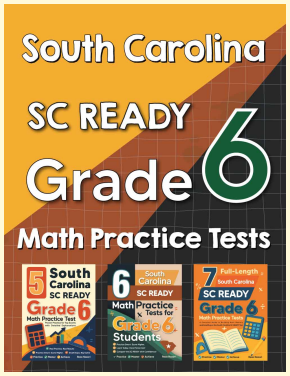

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