Circle Graphs

Circle graphs: Models and calculations

Name _____ **Date** _____ **Score** _____ / 6

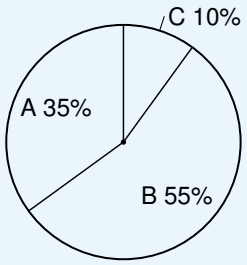
QUICK REVIEW

A circle graph shows parts of one whole, totaling 100% and $360°$. A 25% sector has angle $0.25 \times 360 = 90°$; among 40 people it represents $0.25 \times 40 = 10$ people. Category count = percent × total, and sector angle = percent $\times 360°$. Use a protractor when drawing.

Worked example

Read a three-category survey. There are 20 observations. Use the labeled graph to find each category count and sector angle.

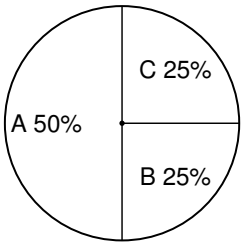
1. The percentages total $35\% + 55\% + 10\% = 100\%$.
2. Counts: $20 \times 35/100 = 7$; $20 \times 55/100 = 11$; $20 \times 10/100 = 2$.
3. Sector angles: $360 \times 35/100 = 126°$; $360 \times 55/100 = 198°$; $360 \times 10/100 = 36°$. Counts total 20; angles total $360°$.
Answer: Counts A: 7, B: 11, C: 2. Angles A: $126°$, B: $198°$, C: $36°$.



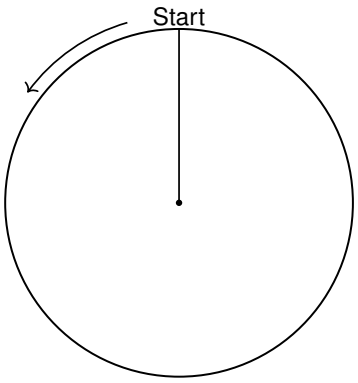
Practice Problems

Show your thinking.

1. Read fractions of the whole. There are 20 observations. Use the labeled graph to find each category count and sector angle.

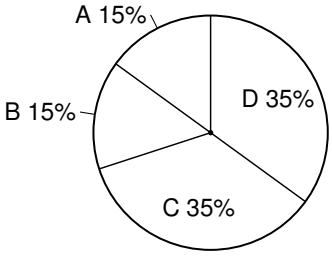


2. Construct a four-category graph. There are 40 observations. Use A: 40%, B: 30%, C: 20%, D: 10%. Draw and label the circle graph from the top ray, counterclockwise. Find counts and angles.



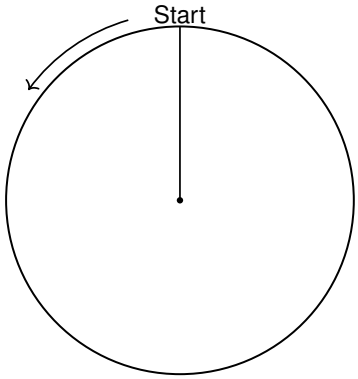
3. Find counts and angles without rounding. There are 60 observations. Use A: 50%, B: 30%, C: 20%. Find each category count and sector angle.

4. Explain why A and B have equal sector sizes. What other pair matches? There are 80 observations. Use the labeled graph to find each category count and sector angle.



5. A club classifies activity choices. There are 50 observations. Use A: 60%, B: 20%, C: 20%. Find each category count and sector angle.

6. A student confuses percentages with angles. Build the corrected sectors. There are 100 observations. Use A: 10%, B: 20%, C: 30%, D: 40%. Draw and label the circle graph from the top ray, counterclockwise. Find counts and angles.



Answer Key

1. Counts A: 10, B: 5, C: 5. Angles A: 180°, B: 90°, C: 90°.
2. Counts A: 16, B: 12, C: 8, D: 4. Angles A: 144°, B: 108°, C: 72°, D: 36°.
3. Counts A: 30, B: 18, C: 12. Angles A: 180°, B: 108°, C: 72°.
4. Counts A: 12, B: 12, C: 28, D: 28. Angles A: 54°, B: 54°, C: 126°, D: 126°. Equal pairs: A and B; C and D.
5. Counts A: 30, B: 10, C: 10. Angles A: 216°, B: 72°, C: 72°.
6. Counts A: 10, B: 20, C: 30, D: 40. Angles A: 36°, B: 72°, C: 108°, D: 144°.

Step-by-Step Solutions

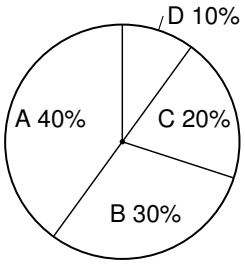
Follow each calculation, then check your own work.

Problem 1

1. The percentages total $50\% + 25\% + 25\% = 100\%$.
2. Counts: $20 \times 50/100 = 10$; $20 \times 25/100 = 5$; $20 \times 25/100 = 5$.
3. Sector angles: $360 \times 50/100 = 180°$; $360 \times 25/100 = 90°$; $360 \times 25/100 = 90°$. Counts total 20; angles total $360°$.

Problem 2

1. The percentages total $40\% + 30\% + 20\% + 10\% = 100\%$.
2. Counts: $40 \times 40/100 = 16$; $40 \times 30/100 = 12$; $40 \times 20/100 = 8$; $40 \times 10/100 = 4$.
3. Sector angles: $360 \times 40/100 = 144°$; $360 \times 30/100 = 108°$; $360 \times 20/100 = 72°$; $360 \times 10/100 = 36°$. Counts total 40; angles total $360°$.
4. Start at the top radius. From the center, measure each next angle counterclockwise from the last boundary. Label each wedge; the last one returns to the top.



Problem 3

1. The percentages total $50\% + 30\% + 20\% = 100\%$.
2. Counts: $60 \times 50/100 = 30$; $60 \times 30/100 = 18$; $60 \times 20/100 = 12$.
3. Sector angles: $360 \times 50/100 = 180°$; $360 \times 30/100 = 108°$; $360 \times 20/100 = 72°$. Counts total 60; angles total $360°$.

Problem 4

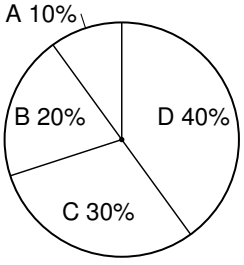
1. The percentages total $15\% + 15\% + 35\% + 35\% = 100\%$.
2. Counts: $80 \times 15/100 = 12$; $80 \times 15/100 = 12$; $80 \times 35/100 = 28$; $80 \times 35/100 = 28$.
3. Sector angles: $360 \times 15/100 = 54°$; $360 \times 15/100 = 54°$; $360 \times 35/100 = 126°$; $360 \times 35/100 = 126°$. Counts total 80; angles total $360°$.
4. A and B each take 15% of the same $360°$ whole, so they have the same angle. C and D each take 35% and also match.

Problem 5

1. The percentages total $60\% + 20\% + 20\% = 100\%$.
2. Counts: $50 \times 60/100 = 30$; $50 \times 20/100 = 10$; $50 \times 20/100 = 10$.
3. Sector angles: $360 \times 60/100 = 216°$; $360 \times 20/100 = 72°$; $360 \times 20/100 = 72°$. Counts total 50; angles total $360°$.

Problem 6

1. The percentages total $10\% + 20\% + 30\% + 40\% = 100\%$.
2. Counts: $100 \times 10/100 = 10$; $100 \times 20/100 = 20$; $100 \times 30/100 = 30$; $100 \times 40/100 = 40$.
3. Sector angles: $360 \times 10/100 = 36°$; $360 \times 20/100 = 72°$; $360 \times 30/100 = 108°$; $360 \times 40/100 = 144°$. Counts total 100; angles total $360°$.
4. Start at the top radius. From the center, measure each next angle counterclockwise from the last boundary. Label each wedge; the last one returns to the top.

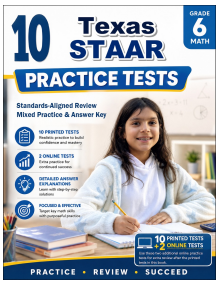


TESTINAR

Keep Building Grade 6 Math Skills

Choose the practice book matched to your state assessment and turn worksheet practice into a complete test-prep plan.

All Grade 6 books



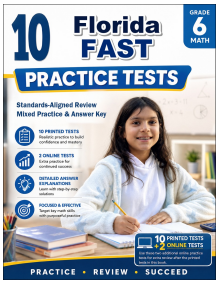
TEXAS STAAR

10 Full-Length Math Practice Tests

Build Grade 6 accuracy, confidence, and test stamina with 10 printable practice tests.

Printable eBook • Instant PDF access

View eBook



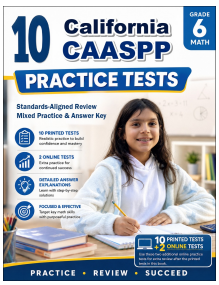
FLORIDA FAST

10 Full-Length Math Practice Tests

Build Grade 6 accuracy, confidence, and test stamina with 10 printable practice tests.

Printable eBook • Instant PDF access

View eBook



CALIFORNIA CAASPP

10 Full-Length Math Practice Tests

Build Grade 6 accuracy, confidence, and test stamina with 10 printable practice tests.

Printable eBook • Instant PDF access

View eBook

Need a different state?
Testinar has Grade 6 math practice books for state assessments across the country.

TESTINAR.COM/GRADES/6