

Sector Matchup

Check whether each percent and sector angle belong together.

GRADE 7 • MA.7.DP.1.4

MA.7.DP.1.4 "Use proportional reasoning to construct, display and interpret data in circle graphs."

NAME _____

DATE _____

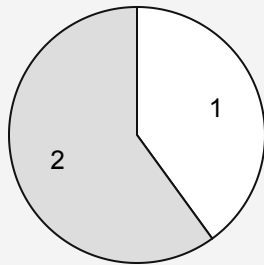
You will need: Protractor and ruler for the circle-graph challenge

MATCH THE PART

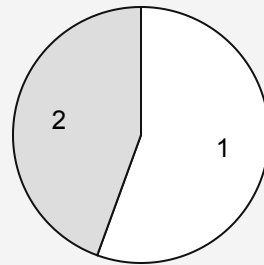
Angle Matches Percent: A matching sector angle equals the percent of a full 360° circle. Multiply the percent by 3.6 to find the angle. Angle Does Not Match Percent: A mismatched sector angle is not the correct part of a 360° circle for the percent shown. Check by multiplying the percent by 3.6.

WORKED EXAMPLE

Example 1: Music response: 40%; sector angle: 144° . Example 2: Garden response: 60%; sector angle: 200° .



1. 144 degrees
2. Rest of circle



1. 200 degrees
2. Rest of circle

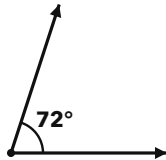
1. For 40%, calculate $40 \times 3.6 = 144$ degrees: MATCHES.
2. For 60%, calculate $60 \times 3.6 = 216$ degrees, not 200: MISMATCH.

Answer: Example 1: MATCHES. Example 2: MISMATCH.

PRACTICE 8 problems

For each item, circle MATCHES or MISMATCH, then choose two items and explain how you checked the percent and angle.

- 1** Data label: 20% Choose MATCHES or MISMATCH.



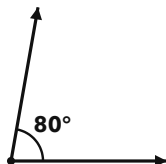
ANSWER _____

- 2** Data label: 45% Choose MATCHES or MISMATCH.



ANSWER _____

- 3** Data label: 25% Choose MATCHES or MISMATCH.



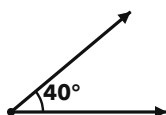
ANSWER _____

- 4** Data label: 35% Choose MATCHES or MISMATCH.



ANSWER _____

- 5** Data label: 10% Choose MATCHES or MISMATCH.



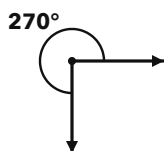
ANSWER _____

- 6** Data label: 50% Choose MATCHES or MISMATCH.



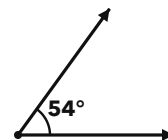
ANSWER _____

- 7** Data label: 75% Choose MATCHES or MISMATCH.



ANSWER _____

- 8** Data label: 15% Choose MATCHES or MISMATCH.



ANSWER _____

APPLY IT Show your work

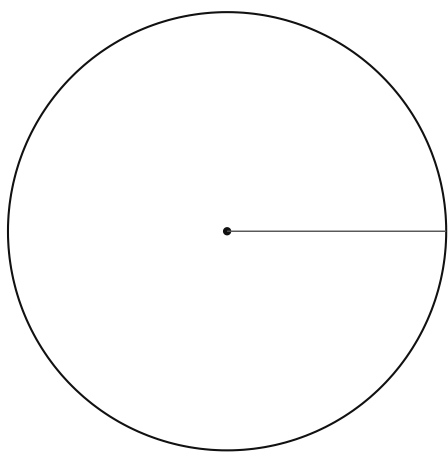
- 1** Choose two practice items. For each one, identify the item and explain how you knew where it belonged.

- 2** Write one new MATCHES example and one new MISMATCH example. Include a percent and a sector angle in each example.

CHALLENGE One step up

A club surveys 40 students. Books has 12 votes, Sports has 10 votes, Music has 8 votes, and Art has 10 votes. Find each category's percent and central angle, then draw a circle graph and name the largest sector.

Draw the survey circle graph Title: _____



PRACTICE 1

MATCHES. $20 \times 3.6 = 72$, so the angle is proportional to the percent.

PRACTICE 2

MATCHES. $45 \times 3.6 = 162$, so the angle is proportional to the percent.

PRACTICE 3

MISMATCH. $25 \times 3.6 = 90$, not 80.

PRACTICE 4

MATCHES. $35 \times 3.6 = 126$, so the angle is proportional to the percent.

PRACTICE 5

MISMATCH. $10 \times 3.6 = 36$, not 40.

PRACTICE 6

MISMATCH. $50 \times 3.6 = 180$, not 170.

PRACTICE 7

MATCHES. $75 \times 3.6 = 270$, so the angle is proportional to the percent.

PRACTICE 8

MATCHES. $15 \times 3.6 = 54$, so the angle is proportional to the percent.

APPLY IT 1

For example: Item 1: MATCHES. $20 \times 3.6 = 72$, so the angle is proportional to the percent.
Item 2: MATCHES. $45 \times 3.6 = 162$, so the angle is proportional to the percent. Accept any two correct explanations using the displayed data and the rule.

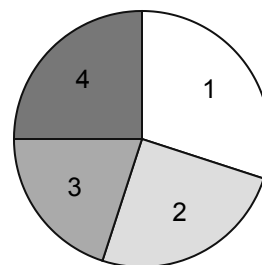
APPLY IT 2

MATCHES: 80% and 288°. MISMATCH: 30% and 100°. Accept other valid examples that satisfy each category.

CHALLENGE

Books: 30% and 108°. Sports: 25% and 90°. Music: 20% and 72°. Art: 25% and 90°. Books is the largest sector.

For Apply It 1, students should show that they multiplied the percent by 3.6 or used an equivalent proportional method. Accept equivalent reasoning, such as recognizing that 25% of a circle must be 90°. Circle sectors must total 360 degrees and 100%. The printed blank circle includes only a center and starting radius; students measure and label all four sectors.



1. Books: 30% (108 degrees)
2. Sports: 25% (90 degrees)
3. Music: 20% (72 degrees)
4. Art: 25% (90 degrees)