

# Circle Graph Studio

Turn survey results into percents and sectors.

GRADE 6 • 6.PS.1.d

**6.PS.1.d** "Organize and represent data using circle graphs, with and without the use of technology tools. The number of data values should be limited to allow for comparisons that have denominators of 12 or less or those that are factors of 100..."

NAME \_\_\_\_\_

DATE \_\_\_\_\_

## BUILD A CIRCLE GRAPH

First, write each category as a fraction of the total. Multiply the fraction by 100 to find the percent, and multiply the fraction by  $360^\circ$  to find the sector angle.

## WORKED EXAMPLE

In a snack poll, 3 of 8 students chose popcorn. What percent of the circle graph is popcorn, and how large is its sector?

1. Write the comparison as  $3/8$ .
2. Find the percent:  $3/8 \times 100\% = 37.5\%$ .
3. Find the angle:  $3/8 \times 360^\circ = 135^\circ$ .

**Answer: Popcorn is 37.5% of the graph, with a  $135^\circ$  sector.**

## PRACTICE 6 problems

- 1** 1. A circle graph has 10 equal parts. A category fills 4 parts. What percent of the graph does it fill, and what is its sector angle?

ANSWER \_\_\_\_\_

- 2** 2. In a survey of 20 students, 6 choose mystery books. What percent choose mystery books, and what is the sector angle?

ANSWER \_\_\_\_\_

- 3** 3. A circle graph shows that 25% of 40 students prefer drawing. How many students prefer drawing, and what is the sector angle?

ANSWER \_\_\_\_\_

- 4** 4. A sector in a circle graph measures  $72^\circ$ . Write the part of the circle as a simplest fraction and as a percent.

ANSWER \_\_\_\_\_

- 5** 5. A media poll has 20 responses: skateboarding, 9; video games, 7; reading, 4. Make a circle graph plan by finding the percent and sector angle for each category.

ANSWER \_\_\_\_\_

- 6** 6. A circle graph has sectors measuring  $120^\circ$ ,  $90^\circ$ ,  $60^\circ$ , and one unknown sector. Find the unknown sector's angle, simplest fraction of the circle, and percent.

ANSWER \_\_\_\_\_

## APPLY IT Show your work

- 1** 1. Twenty students vote for the opening act at a school talent show. Music gets 9 votes, dance gets 6 votes, comedy gets 4 votes, and magic gets 1 vote. Make a circle graph plan by giving the percent and sector angle for each act. Which act has the largest sector?

WORK SPACE

ANSWER \_\_\_\_\_

- 2** 2. A lunchtime club asks 12 students which activity they want most: basketball, 5; coding, 4; art, 2; music, 1. Give the fraction and sector angle for each activity in a circle graph. Which two activity sectors combine to make one-half of the circle?

WORK SPACE

ANSWER \_\_\_\_\_

## CHALLENGE One step up

### CHALLENGE

A 20-person survey has 9 votes for one choice, 6 votes for another choice, and 5 votes for a third choice. A student draws sectors of  $150^\circ$ ,  $120^\circ$ , and  $90^\circ$ . In exactly 2 sentences, explain whether the graph is correct and give the correct sector measures.

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**PART 1 • PRACTICE**

| # | PROBLEM                                                                                                                                                             | ANSWER                                                                     |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| 1 | 1. A circle graph has 10 equal parts. A category fills 4 parts. What percent of the graph does it fill, and what is its sector angle?                               | <b>40%; 144°</b>                                                           |
| 2 | 2. In a survey of 20 students, 6 choose mystery books. What percent choose mystery books, and what is the sector angle?                                             | <b>30%; 108°</b>                                                           |
| 3 | 3. A circle graph shows that 25% of 40 students prefer drawing. How many students prefer drawing, and what is the sector angle?                                     | <b>10 students; 90°</b>                                                    |
| 4 | 4. A sector in a circle graph measures 72°. Write the part of the circle as a simplest fraction and as a percent.                                                   | <b>1/5; 20%</b>                                                            |
| 5 | 5. A media poll has 20 responses: skateboarding, 9; video games, 7; reading, 4. Make a circle graph plan by finding the percent and sector angle for each category. | <b>Skateboarding: 45%, 162°; video games: 35%, 126°; reading: 20%, 72°</b> |
| 6 | 6. A circle graph has sectors measuring 120°, 90°, 60°, and one unknown sector. Find the unknown sector's angle, simplest fraction of the circle, and percent.      | <b>90°; 1/4; 25%</b>                                                       |

**PART 2 • APPLY IT**

- Music: 45%, 162°; dance: 30%, 108°; comedy: 20%, 72°; magic: 5%, 18°. Music has the largest sector.** Use 20 as the total for every category. Divide each vote count by 20, then multiply by 100% and 360°.
- Basketball: 5/12, 150°; coding: 1/3, 120°; art: 1/6, 60°; music: 1/12, 30°. Coding and art combine to make 1/2 of the circle.** Use 12 as the total and multiply each fraction by 360° for its angle. Coding and art have  $4 + 2 = 6$  responses, which is  $6/12$  or  $1/2$ .

**CHALLENGE**

**No, 9/20 of 360° is 162°, not 150°. The correct sectors are 162°, 108°, and 90°, and they total 360°.**

Accept equivalent fractions, such as  $4/12$  for  $1/3$  and  $2/12$  for  $1/6$ . Accept a correct organized table or labeled circle graph plan when all percentages and angles match.