

Angle Detective

Read protractor scales and plan accurate angle sketches.

GRADE 4 • 4.MD.C.6

CCSS.Math.Content.4.MD.C.6 "Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure."

NAME _____

DATE _____

READ FROM ZERO

Start at the 0° mark on the same side as the angle's baseline. Read the scale that begins with 0° there. To sketch an angle, draw one ray, choose the correct scale, mark the degree measure, and draw the second ray through the mark.

WORKED EXAMPLE

A baseline starts at the 0° mark on the right side of a protractor. The other ray crosses the inner scale at 46° . What is the angle measure?

1. The baseline starts at the right-side 0° mark.
2. Use the inner scale because it starts at 0° on the right.
3. The other ray crosses 46° on that scale.

Answer: 46°

PRACTICE 6 problems

- 1** A baseline starts at the 0° mark on the right side of a protractor. The other ray crosses the inner scale at 34° . What is the angle measure?

ANSWER _____

- 2** A baseline starts at the 0° mark on the left side of a protractor. The other ray crosses the outer scale at 121° . What is the angle measure?

ANSWER _____

- 3** Two rays cross the same protractor scale at 18° and 79° . What is the measure of the smaller angle between them?

ANSWER _____

- 4** Two rays cross the same protractor scale at 154° and 87° . What is the measure of the smaller angle between them?

ANSWER _____

- 5** You are going to sketch a 96° angle with its first ray pointing right. Which protractor scale should you use, and which mark should you use?

ANSWER _____

- 6** A baseline starts at the 0° mark on the left side of a protractor. The other ray crosses a tick marked 109° on the inner scale and 71° on the outer scale. What is the angle measure?

ANSWER _____

APPLY IT Show your work

1

Kai is designing a robot maze. At one turn, the first route line points to the 0° mark on the right side of a protractor. The second route line crosses the inner scale at 128° . What angle does the robot turn through?

WORK SPACE

ANSWER _____

2

At art club, Zoe draws two sun rays from the same point. On the same protractor scale, one ray crosses 27° and the other crosses 102° . What is the measure of the smaller angle between the rays?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A student is sketching an angle with its first ray pointing left. The second ray crosses a protractor tick labeled 63° on the inner scale and 117° on the outer scale. What measure should the student use? Explain how you chose the scale.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A baseline starts at the 0° mark on the right side of a protractor. The other ray crosses the inner scale at 34° . What is the angle measure?	34°
2	A baseline starts at the 0° mark on the left side of a protractor. The other ray crosses the outer scale at 121° . What is the angle measure?	121°
3	Two rays cross the same protractor scale at 18° and 79° . What is the measure of the smaller angle between them?	61°
4	Two rays cross the same protractor scale at 154° and 87° . What is the measure of the smaller angle between them?	67°
5	You are going to sketch a 96° angle with its first ray pointing right. Which protractor scale should you use, and which mark should you use?	Use the inner scale and the 96° mark.
6	A baseline starts at the 0° mark on the left side of a protractor. The other ray crosses a tick marked 109° on the inner scale and 71° on the outer scale. What is the angle measure?	71°

PART 2 • APPLY IT

- 128°** The baseline begins at the right-side 0° mark, so use the inner scale. The second ray crosses 128° .
- 75°** Subtract the smaller reading from the larger reading: $102 - 27 = 75$. The smaller angle measures 75° .

CHALLENGE

117° , because a ray pointing left starts at 0° on the outer scale.

Accept angle measures written with or without the degree symbol when the number is correct. For scale-selection responses, accept equivalent wording that identifies the scale beginning at 0° on the baseline side.