

# Angle Explorer

Measure, compare, and sketch angles in degrees.

**GRADE 4 • NY-4.MD.6**

**NY-4.MD.6** "Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure."

NAME \_\_\_\_\_

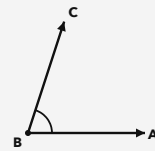
DATE \_\_\_\_\_

## MEASURE AN ANGLE

Place the center mark of your protractor on the angle's vertex. Line up one ray with  $0^\circ$ , then read the scale that starts at  $0^\circ$  on that ray. The number where the other ray points is the angle measure.

## WORKED EXAMPLE

Use a protractor to measure angle ABC.

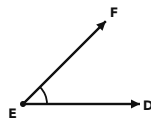


1. Put the protractor's center mark on point B.
2. Line up ray BA with  $0^\circ$ .
3. Read the scale that starts at  $0^\circ$  on ray BA.
4. Ray BC points to  $72^\circ$ .

**Answer:  $72^\circ$**

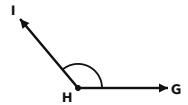
## PRACTICE 6 problems

- 1** Use a protractor to measure angle DEF.



ANSWER \_\_\_\_\_

- 2** Use a protractor to measure angle GHI.



ANSWER \_\_\_\_\_

- 3** A right angle is split into two smaller angles. One angle measures  $37^\circ$ . What is the measure of the other angle?

ANSWER \_\_\_\_\_

- 4** Two angles form a straight angle. One angle measures  $118^\circ$ . What is the measure of the other angle?

ANSWER \_\_\_\_\_

- 5** Use a protractor to sketch an angle that measures  $105^\circ$ . Label the angle with its measure.

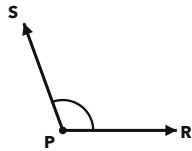
ANSWER \_\_\_\_\_

- 6** Use a protractor to sketch an angle that measures  $60^\circ$ . Label the angle with its measure.

ANSWER \_\_\_\_\_

## APPLY IT Show your work

- 1** At the skate park, Kiara measures the opening between two rails shown. Use a protractor to find the angle measure.



ANSWER \_\_\_\_\_

- 2** The clock shows when Malik starts his robotics club meeting. What is the measure of the smaller angle between the hour hand and minute hand?



ANSWER \_\_\_\_\_

## CHALLENGE One step up

Four equal angles fit around one point. Together, they make a full turn of  $360^\circ$ . What is the measure of each angle? Explain your reasoning.

WORK SPACE AND ANSWER

## PART 1 • PRACTICE

| # | PROBLEM                                                                                                         | ANSWER                                               |
|---|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| 1 | Use a protractor to measure angle DEF.                                                                          | <b>45°</b>                                           |
| 2 | Use a protractor to measure angle GHI.                                                                          | <b>130°</b>                                          |
| 3 | A right angle is split into two smaller angles. One angle measures 37°. What is the measure of the other angle? | <b>53°</b>                                           |
| 4 | Two angles form a straight angle. One angle measures 118°. What is the measure of the other angle?              | <b>62°</b>                                           |
| 5 | Use a protractor to sketch an angle that measures 105°. Label the angle with its measure.                       | <b>A correctly sketched 105° angle labeled 105°.</b> |
| 6 | Use a protractor to sketch an angle that measures 60°. Label the angle with its measure.                        | <b>A correctly sketched 60° angle labeled 60°.</b>   |

## PART 2 • APPLY IT

1. **110°** Place the protractor's center on P and line up one rail with 0°. The other rail points to 110°.
2. **60°** At 2:00, the minute hand points to 12 and the hour hand points to 2. Each hour mark is 30°, so 2 hour marks measure 60°.

## CHALLENGE

**90°. Since  $360^\circ \div 4 = 90^\circ$ , each of the four equal angles measures 90°.**

Accept angle sketches if the measured angle is accurate to the nearest whole degree and is labeled correctly. For the challenge, accept an explanation using  $360^\circ$  divided into 4 equal parts.