

Angle Detectives

Read a protractor scale and name each angle.

GRADE 5 • 5.MG.3.f

5.MG.3.f "Measure right, acute, obtuse, and straight angles, using appropriate tools, and identify measures in degrees."

NAME _____

DATE _____

READ THE CORRECT SCALE

Place the center mark of a protractor on the angle's vertex. Start at 0 on the scale that lines up with the first ray, then read where the second ray crosses. An acute angle is less than 90 degrees, a right angle is 90 degrees, an obtuse angle is between 90 and 180 degrees, and a straight angle is 180 degrees.

WORKED EXAMPLE

One ray is lined up with 0 on a protractor. The other ray crosses 68. What is the angle measure and type?

1. Find the scale that starts at 0 on the first ray.
2. Read 68 where the second ray crosses.
3. Since 68 is less than 90, the angle is acute.

Answer: 68 degrees, acute angle

PRACTICE 6 problems

- 1** A protractor is lined up with one ray at 0 on the outer scale. The other ray crosses 35. What is the measure and type?

ANSWER _____

- 2** A protractor is lined up with one ray at 0 on the inner scale. The other ray crosses 120. What is the measure and type?

ANSWER _____

- 3** One ray is lined up with 0 on a protractor. The second ray crosses 145. What is the measure and type?

ANSWER _____

- 4** Two opposite rays make one half-turn. What is the measure and type of the angle?

ANSWER _____

- 5** A protractor starts at 0 on the first ray. The second ray crosses 47. What is the measure and type?

ANSWER _____

- 6** A protractor starts at 0 on the first ray. The second ray crosses 90. What is the measure and type?

ANSWER _____

APPLY IT Show your work

- 1** On a soccer playbook, two passing routes begin at the same player. A protractor is lined up with the first route at 0, and the second route crosses 128. What is the angle measure and type?

WORK SPACE

ANSWER _____

- 2** In a video game, a laser turns from its first path to its second path. A protractor shows a turn of 72 degrees. What type of angle is the turn?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A protractor has its first ray pointing right. That ray lines up with 0 on the inner scale. The second ray crosses 40 on the inner scale and 140 on the outer scale. What is the angle measure and type? Explain which number you used.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A protractor is lined up with one ray at 0 on the outer scale. The other ray crosses 35. What is the measure and type?	35 degrees, acute angle
2	A protractor is lined up with one ray at 0 on the inner scale. The other ray crosses 120. What is the measure and type?	120 degrees, obtuse angle
3	One ray is lined up with 0 on a protractor. The second ray crosses 145. What is the measure and type?	145 degrees, obtuse angle
4	Two opposite rays make one half-turn. What is the measure and type of the angle?	180 degrees, straight angle
5	A protractor starts at 0 on the first ray. The second ray crosses 47. What is the measure and type?	47 degrees, acute angle
6	A protractor starts at 0 on the first ray. The second ray crosses 90. What is the measure and type?	90 degrees, right angle

PART 2 • APPLY IT

1. **128 degrees, obtuse angle** Read 128 from the scale that begins at 0 on the first route. Since 128 is between 90 and 180, the angle is obtuse.
2. **acute angle** The turn measures 72 degrees. Since 72 is less than 90, it is an acute angle.

CHALLENGE

40 degrees, acute angle. Use 40 because the inner scale starts at 0 on the first ray.

Accept answers written with the degree symbol instead of the word degrees. For the challenge, students should identify the scale that starts at 0 on the first ray and explain that this is why 40 is used.