

Angle Detective

Add and subtract angle measures to solve each case.

GRADE 4 • 4.MD.C

CCSS.Math.Content.4.MD.C "Geometric measurement: understand concepts of angle and measure angles."

NAME _____

DATE _____

THE BIG IDEA

An angle measure tells how much a line turns from one ray to another. When smaller angles make one whole angle, add their measures. When you know the whole and one part, subtract to find the missing part.

WORKED EXAMPLE

A whole angle measures 150 degrees. One part measures 68 degrees. What is the missing part, x ?

1. Whole angle = 150 degrees.
2. Subtract the known part: $150 - 68 = x$.
3. $x = 82$ degrees.

Answer: $x = 82$ degrees

PRACTICE 6 problems

- 1** A right angle is split into 34 degrees and x . Find x .

ANSWER _____

- 2** A straight angle is split into 73 degrees and x . Find x .

ANSWER _____

- 3** Angles around a point measure 110 degrees, 95 degrees, and x . Find x .

ANSWER _____

- 4** A whole angle measures 128 degrees. One part is 61 degrees. Find x , the other part.

ANSWER _____

- 5** Two adjacent angles measure 36 degrees and 54 degrees. What is their total measure?

ANSWER _____

- 6** An angle measures 143 degrees. One part is 72 degrees. Find x , the other part.

ANSWER _____

APPLY IT Show your work

- 1** At a coding club, a robot arm makes a full turn. It turns 124 degrees, then 98 degrees in the same direction. How many more degrees must it turn to make a full turn?

WORK SPACE

ANSWER _____

- 2** In an arcade game, a spinner needs to move through a right angle. It has already moved 27 degrees. How many more degrees must it move?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Four angles meet at one point. Their measures are x , $2x$, 84 degrees, and 96 degrees. Find x and explain how you know.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A right angle is split into 34 degrees and x . Find x .	$x = 56$ degrees
2	A straight angle is split into 73 degrees and x . Find x .	$x = 107$ degrees
3	Angles around a point measure 110 degrees, 95 degrees, and x . Find x .	$x = 155$ degrees
4	A whole angle measures 128 degrees. One part is 61 degrees. Find x , the other part.	$x = 67$ degrees
5	Two adjacent angles measure 36 degrees and 54 degrees. What is their total measure?	90 degrees
6	An angle measures 143 degrees. One part is 72 degrees. Find x , the other part.	$x = 71$ degrees

PART 2 • APPLY IT

- 138 degrees** A full turn is 360 degrees. Add 124 and 98, then subtract the sum from 360.
- 63 degrees** A right angle measures 90 degrees. Subtract 27 from 90.

CHALLENGE

$x = 60$ degrees. Angles around a point total 360 degrees, so $x + 2x + 84 + 96 = 360$. Then $3x = 180$, so $x = 60$.

Accept answers with or without the word degrees when the measure is correct. For the challenge, accept an explanation that angles around a point total 360 degrees and shows $x = 60$.