

Triangle Angle Detectives

Use 180 degrees to find each missing angle.

GRADE 5 • 5.MG.3.g

5.MG.3.g "Use models to prove that the sum of the interior angles of a triangle is 180 degrees and use the relationship to determine an unknown angle measure in a triangle."

NAME _____

DATE _____

THE BIG IDEA

The three interior angles inside every triangle add to 180 degrees. A model can show this: cut off the three corners of a triangle and place them together. They form a straight angle, which measures 180 degrees.

WORKED EXAMPLE

A triangle has angles of 47 degrees and 68 degrees. What is the missing angle?

1. Add the known angles: $47 + 68 = 115$.
2. Subtract from 180: $180 - 115 = 65$.

Answer: 65 degrees

PRACTICE 6 problems

- 1** A triangle has angles of 38 degrees and 79 degrees. What is the missing angle?

ANSWER _____

- 2** A triangle has angles of 93 degrees and 42 degrees. What is the missing angle?

ANSWER _____

- 3** A triangle has angles of 110 degrees and 25 degrees. What is the missing angle?

ANSWER _____

- 4** A triangle has two angles that each measure 67 degrees. What is the third angle?

ANSWER _____

- 5** A triangle has angles of 80 degrees and 54 degrees. What is the missing angle?

ANSWER _____

- 6** A triangle has angles of 120 degrees and 30 degrees. What is the missing angle?

ANSWER _____

APPLY IT Show your work

- 1** Maya designs a triangular sticker for her water bottle. Two interior angles measure 56 degrees and 73 degrees. What is the measure of the third angle?

WORK SPACE

ANSWER _____

- 2** A video game team badge is shaped like a triangle. Two of its interior angles measure 88 degrees and 44 degrees. What is the measure of the third angle?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

One angle in a triangle measures 72 degrees. The other two angles differ by 18 degrees. What are the measures of all three angles? Explain how you know.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A triangle has angles of 38 degrees and 79 degrees. What is the missing angle?	63 degrees
2	A triangle has angles of 93 degrees and 42 degrees. What is the missing angle?	45 degrees
3	A triangle has angles of 110 degrees and 25 degrees. What is the missing angle?	45 degrees
4	A triangle has two angles that each measure 67 degrees. What is the third angle?	46 degrees
5	A triangle has angles of 80 degrees and 54 degrees. What is the missing angle?	46 degrees
6	A triangle has angles of 120 degrees and 30 degrees. What is the missing angle?	30 degrees

PART 2 • APPLY IT

1. **51 degrees** Add 56 and 73 to get 129. Subtract 129 from 180 to get 51 degrees.
2. **48 degrees** Add 88 and 44 to get 132. Subtract 132 from 180 to get 48 degrees.

CHALLENGE

45 degrees, 63 degrees, and 72 degrees. The two unknown angles add to 108 degrees because $180 - 72 = 108$. Two numbers that add to 108 and differ by 18 are 45 and 63.

Accept angle measures written with the word degrees or the degree symbol. For the challenge, accept either order for the 45-degree and 63-degree angles if the reasoning is correct.