

Triangle Detective

Use side lengths and angle measures to sort triangles.

GRADE 5 • 5.MG.3.d

5.MG.3.d "Compare and contrast the properties of triangles."

NAME _____

DATE _____

TRIANGLE CLUES

Every triangle has three sides, and its angle measures add to 180 degrees. A triangle is equilateral when all sides match, isosceles when exactly two sides match, and scalene when no sides match. It is acute when all angles are less than 90 degrees, right when one angle is 90 degrees, and obtuse when one angle is greater than 90 degrees.

WORKED EXAMPLE

A triangle has side lengths 6 cm, 6 cm, and 9 cm. Classify it by its sides.

1. Look for side lengths that match.
2. Two side lengths are 6 cm.
3. A triangle with exactly two matching sides is isosceles.

Answer: isosceles triangle

PRACTICE 6 problems

- 1** A triangle has side lengths 4 cm, 4 cm, and 4 cm. Classify it by its sides.

ANSWER _____

- 2** A triangle has side lengths 3 cm, 5 cm, and 7 cm. Classify it by its sides.

ANSWER _____

- 3** A triangle has angle measures 41 degrees, 67 degrees, and 72 degrees. Classify it by its angles.

ANSWER _____

- 4** A triangle has angle measures 90 degrees, 28 degrees, and 62 degrees. Classify it by its angles.

ANSWER _____

- 5** A triangle has exactly two equal side lengths and one angle measuring 104 degrees. Classify it by its sides and angles.

ANSWER _____

- 6** Triangle M has side lengths 12 cm, 12 cm, and 15 cm. Triangle N has side lengths 11 cm, 13 cm, and 14 cm. Which triangle has exactly two equal sides?

ANSWER _____

APPLY IT Show your work

- 1** A triangular trail marker has angles measuring 52 degrees and 61 degrees. What is the measure of the third angle? Then classify the marker by its angles.

WORK SPACE

ANSWER _____

- 2** For a music club display, Maya uses three ribbons that are 18 cm, 18 cm, and 25 cm long to make a triangle. Classify the triangle by its sides.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A student says that a triangle with angles measuring 76 degrees, 76 degrees, and 28 degrees can be scalene. Is the student correct? Explain your reasoning.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A triangle has side lengths 4 cm, 4 cm, and 4 cm. Classify it by its sides.	equilateral triangle
2	A triangle has side lengths 3 cm, 5 cm, and 7 cm. Classify it by its sides.	scalene triangle
3	A triangle has angle measures 41 degrees, 67 degrees, and 72 degrees. Classify it by its angles.	acute triangle
4	A triangle has angle measures 90 degrees, 28 degrees, and 62 degrees. Classify it by its angles.	right triangle
5	A triangle has exactly two equal side lengths and one angle measuring 104 degrees. Classify it by its sides and angles.	isosceles and obtuse
6	Triangle M has side lengths 12 cm, 12 cm, and 15 cm. Triangle N has side lengths 11 cm, 13 cm, and 14 cm. Which triangle has exactly two equal sides?	Triangle M, an isosceles triangle

PART 2 • APPLY IT

- 67 degrees; acute triangle** Subtract the two known angles from 180 degrees: $180 - 52 - 61 = 67$. All three angles are less than 90 degrees, so the triangle is acute.
- isosceles triangle** Two of the ribbon lengths match. A triangle with exactly two equal sides is isosceles.

CHALLENGE

No. The two 76-degree angles mean the two opposite sides are equal, so the triangle is isosceles, not scalene.

Accept correct triangle names with or without the word "triangle." For the challenge, accept an explanation that connects two equal angles to two equal opposite sides.