MATHEMATICS · GRADES 4-6

Classifying triangles

Difficulty level: Intermediate

Mathematics: Grades 4-6

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Overview of the concept

This is how you name a triangle by its sides or its corners. An equal-sided triangle, a right-angled one, or an isosceles one each have properties you can rely on without measuring. The name is a shortcut, because once you know what kind of triangle you have, you know what is equal inside it.



Rule

Classifying triangles: name a triangle by its sides or by its angles. By sides, three equal sides is equilateral, two equal sides is isosceles, and no equal sides is scalene.

By angles, one 90 degree angle is a right triangle, one angle over 90 degrees is obtuse, and all angles under 90 degrees is acute. A triangle can have two names at once, such as right and isosceles.

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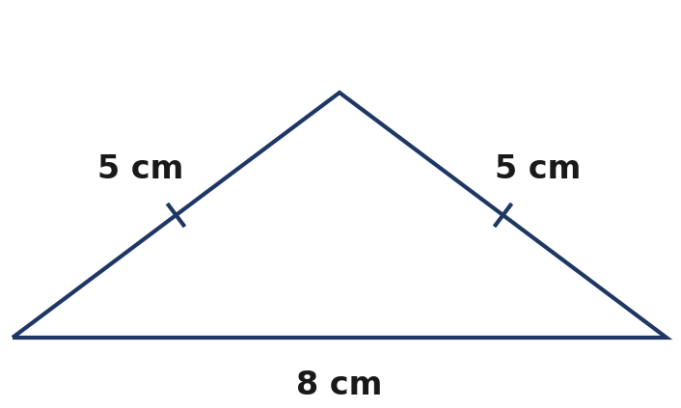
Worked examples

EXAMPLE 1

Q Classify a triangle with sides 5 cm, 5 cm, 8 cm



SOLUTION

Sides: 5, 5, 8

Two sides equal

-> Isosceles triangle

Compare the sides: two are equal (5 and 5).

A triangle with two equal sides is isosceles.

So the answer is isosceles.

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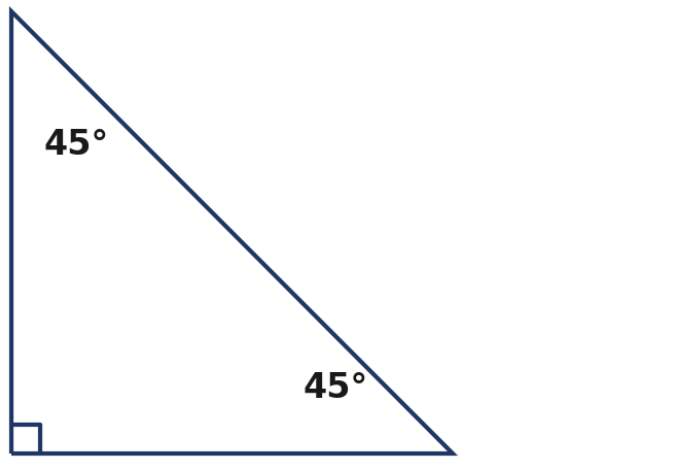
EXAMPLE 2

Q Classify a triangle with angles 90, 45, 45 degrees



SOLUTION

Angles: 90, 45, 45

One angle is 90

-> Right triangle

Look for a 90 degree angle: there is one.

A triangle with a right angle is a right triangle.

So the answer is right triangle. (It is also isosceles, since two angles match.).

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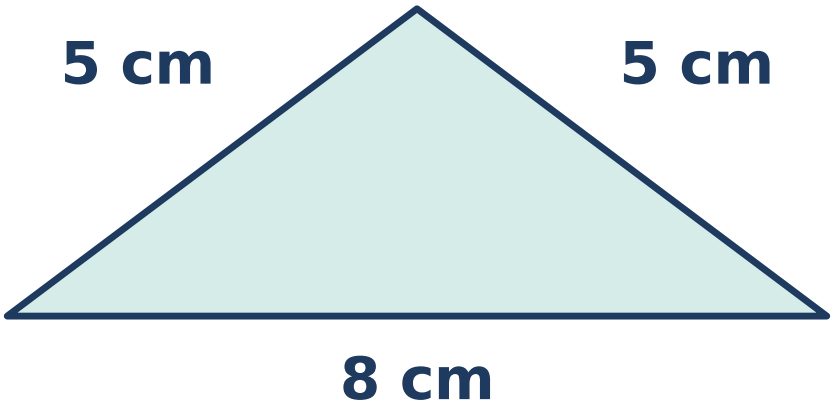
Practice questions

1 A sail is shaped like the triangle in the picture. What type of triangle is it by its sides?



- **A** Equilateral
- **B** Isosceles
- **C** Scalene
- **D** Right

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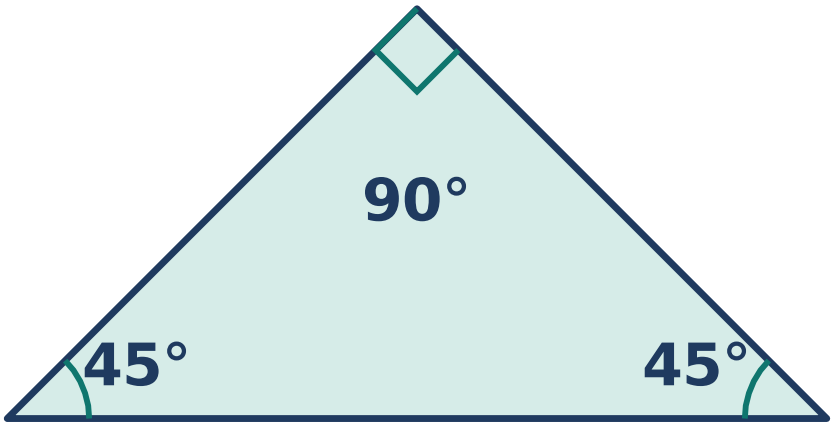
2 A roof corner is shaped like the triangle in the picture. What type of triangle is it by its angles?



A Acute

B Obtuse

C Right

D Isosceles

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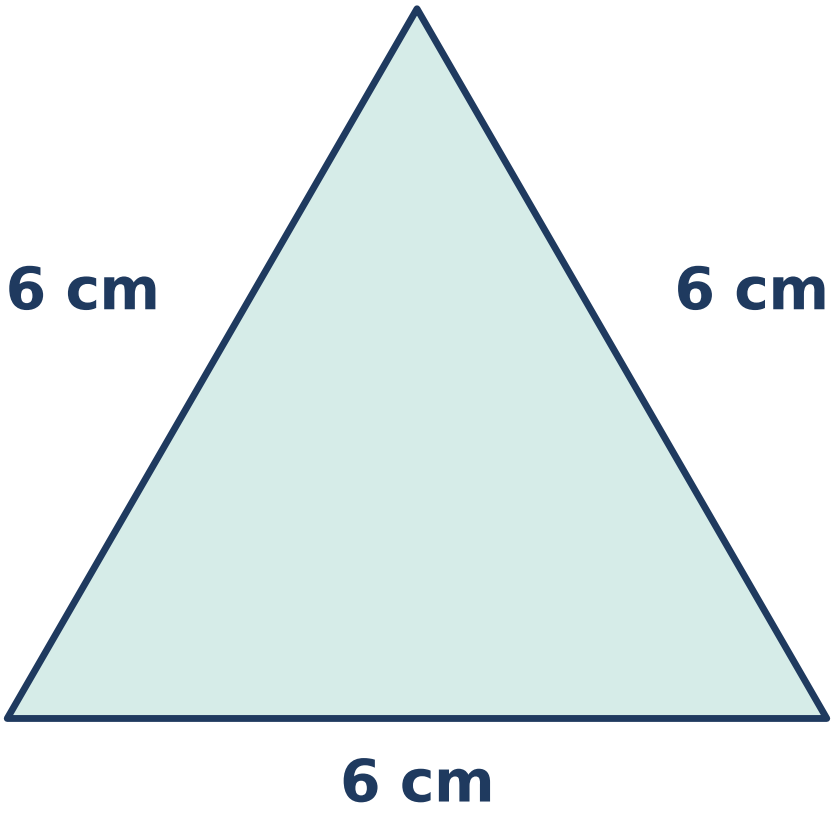
3 **A sign is shaped like the triangle in the picture. What type of triangle is it by its sides?**



A Equilateral

B Isosceles

C Scalene

D Obtuse

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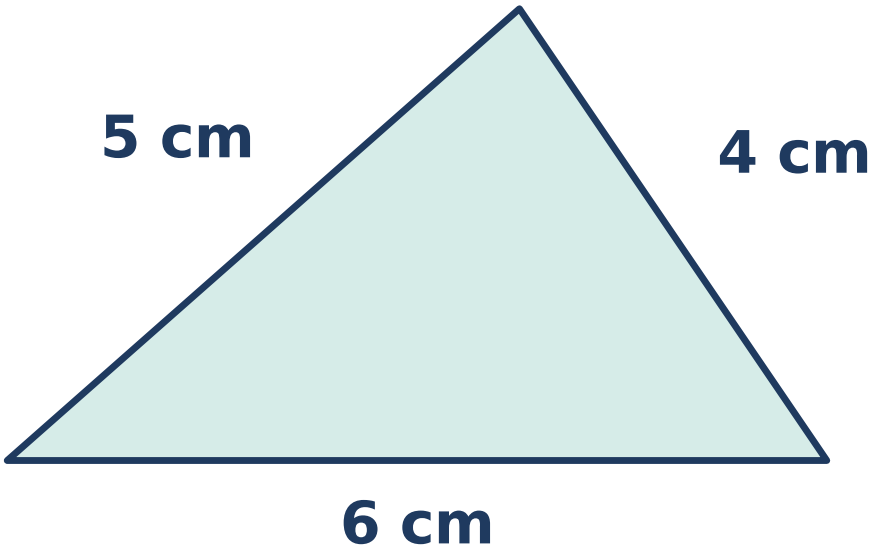
4 **A garden bed is shaped like the triangle in the picture. What type of triangle is it by its sides?**



A Isosceles

B Equilateral

C Right

D Scalene

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5 **A ramp support is shaped like the triangle in the picture. What type of triangle is it by its angles?**



A Acute

B Obtuse

C Right

D Scalene

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How many equal sides does a scalene triangle have?

A 0

B 1

C 2

D 3

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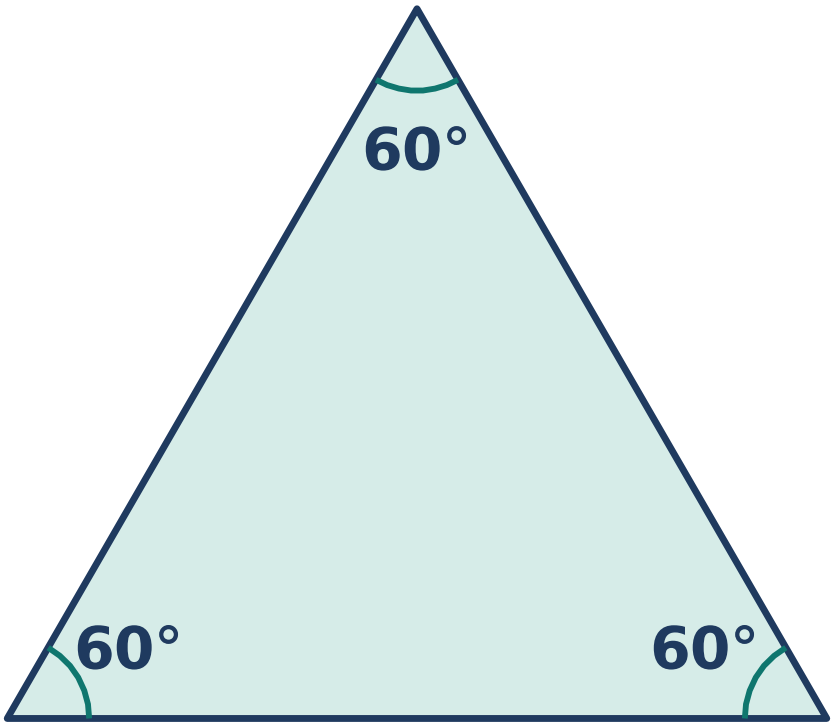
7 **A warning sign is shaped like the triangle in the picture. What type of triangle is it by its angles?**



A Obtuse

B Right

C Equilateral

D Acute

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8

Every equilateral triangle is also isosceles. Why?

A. An equilateral triangle has three equal sides, so it has two equal sides

B. An equilateral triangle has no equal sides

C. An equilateral triangle has one right angle

D. An equilateral triangle has all angles over 90 degrees

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9 A triangle has angles 90°, 45°, 45°. It is a right triangle. What is its other name?

- A Equilateral
- B Isosceles
- C Scalene
- D Obtuse

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10 A triangle has sides 5 cm, 12 cm, 13 cm and one angle of 90°. What type is it by its sides and by its angles?

- A Scalene and right
- B Isosceles and right
- C Equilateral and acute
- D Scalene and acute

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ANSWER KEY

1. Isosceles

2. Right

3. Equilateral

4. Scalene

5. Obtuse

6. 0

7. Acute

8. An equilateral triangle has three equal sides, so it has two equal sides

9. Isosceles

10. Scalene and right

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