Types of Triangle

Aim

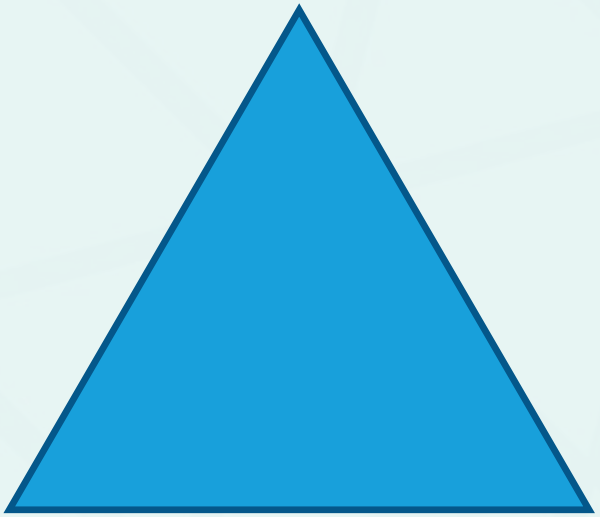
- To identify and discuss different types of triangle.

Success Criteria

- To name different equilateral, isosceles, scalene and right-angled triangles.
- To describe the properties of different types of triangle.
- To work out the value of a missing angle inside a triangle.

What Is a Triangle?

a 3-sided shape



all its sides are straight

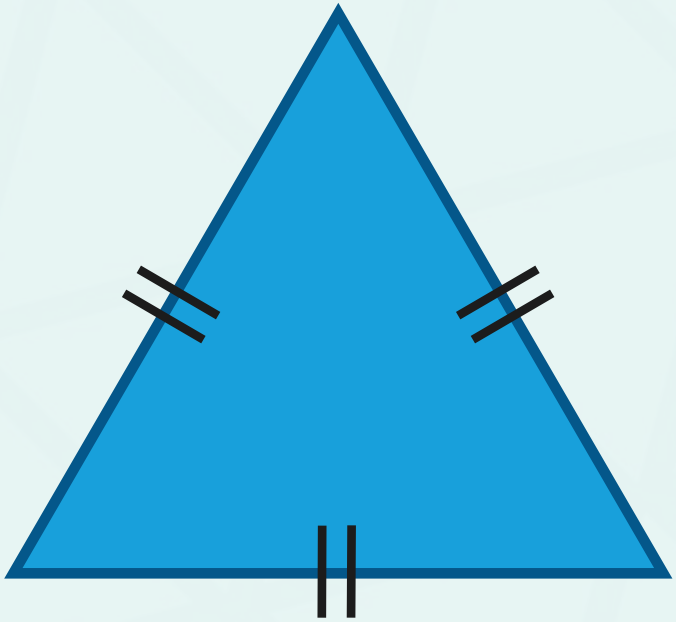
a 2D shape

has 3 **interior angles*** that add up to 180°

*the angles inside the shape

Equilateral Triangle

Do you think you know any properties of equilateral triangles?
What do you think **equilateral** means?



Has 3 equal sides.

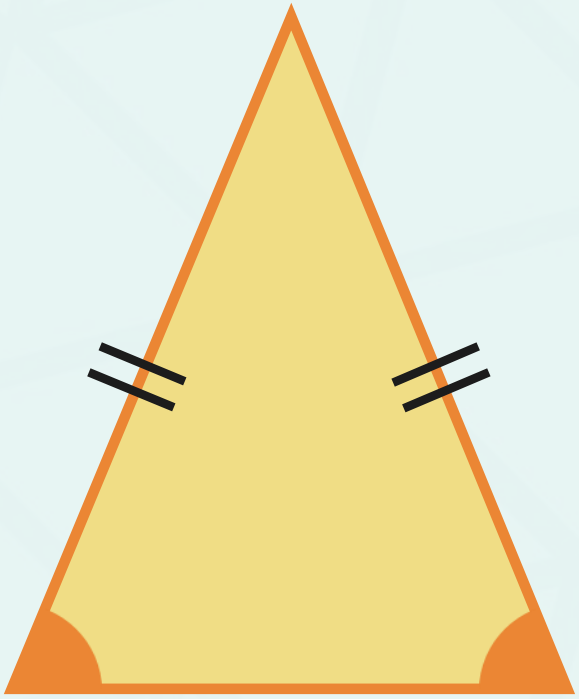
All its interior angles are the same.

If the angles in a triangle add up to 180°, what must each interior angle in an equilateral triangle be?

60°

Isosceles Triangle

Do you think you know any properties of isosceles triangles?

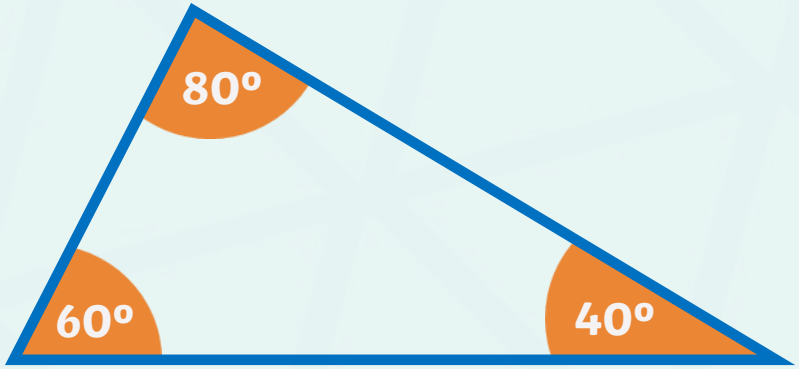


They have 2 equal sides.

They have 2 interior angles that are the same. These are called the base angles.

Scalene Triangle

Do you think you know any properties of scalene triangles?



All of its sides are different lengths.

All of its interior angles are different – but they still add up to 180°.

Right-Angled Triangle

Do you think you know any properties of right-angled triangles?

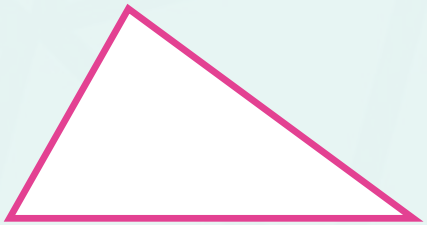
One of the angles is a right angle = 90°.

The other two angles will add up to 90°

The longest side of a right-angled triangle is called the hypotenuse.

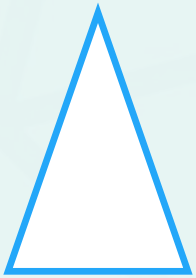
Can You Identify These Triangles?

Do you think you know any properties of right-angled triangles?

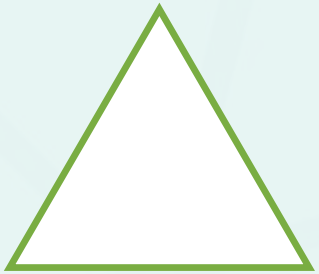


scalene

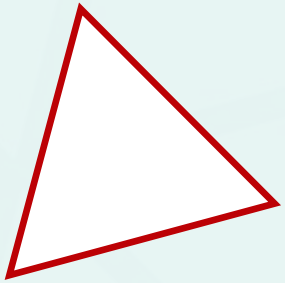
right-angled



isosceles



equilatera l



equilateral

right-angled

What Am I?

Each of my interior angles measure 60°. What am I?

I am an equilateral triangle.

I am the longest side of a right-angled triangle. What am I?

I am the hypotenuse.

The lengths of all my three sides are different. What am I?

I am a scalene triangle.

My interior angles measure 43°, 65° and 72°. What am I?

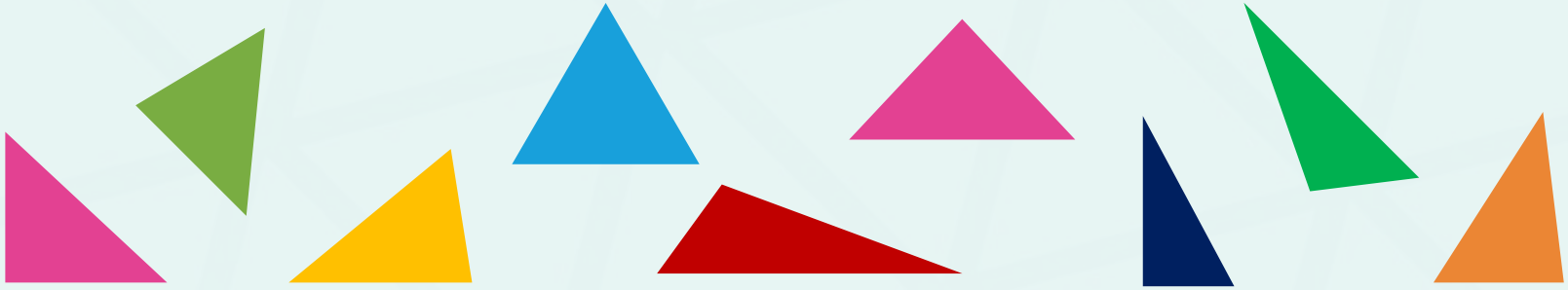
I am a scalene triangle.

I have 2 equal sides and 2 equal angles. What am I?

I am an isosceles triangle.

Sorting Triangles

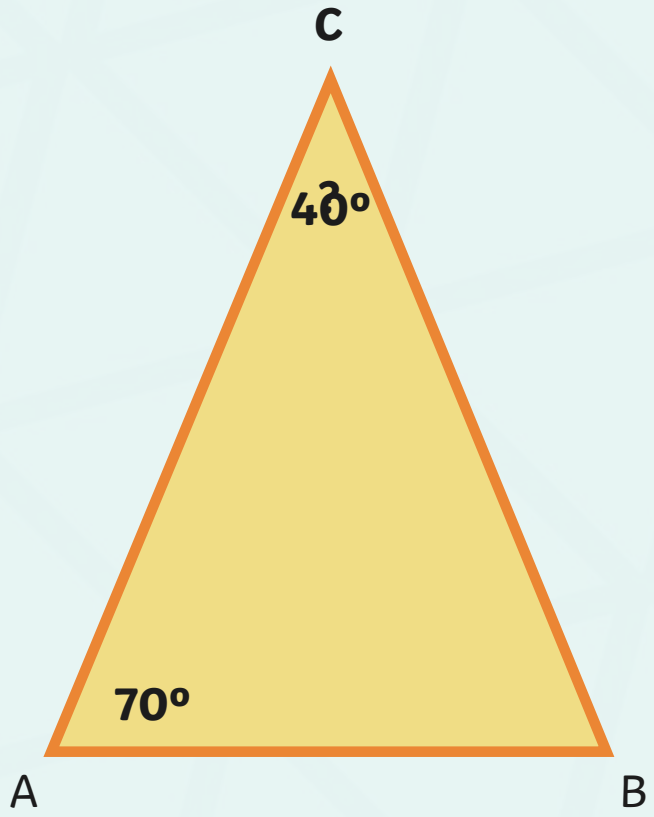
	Isosceles	Scalene
Right-angled		
Not Right-angled		



Click on the shapes to see where they belong.

Find the Missing Angle

The angles in any triangle add up to 180º. How could we find angle **C** in this triangle?



What do we know that can help us?

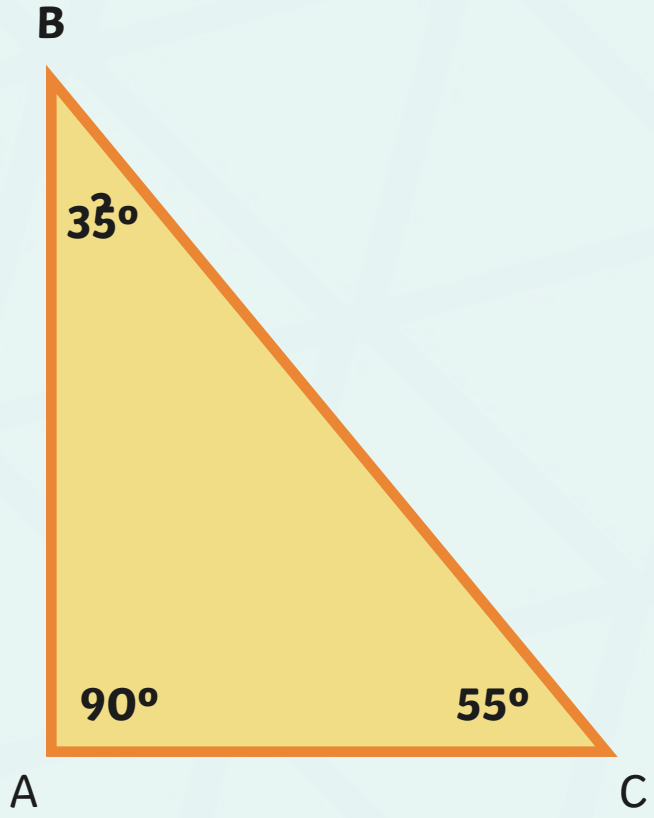
This is an isosceles triangle so angle A and B are the same. Angle B is also 70º.

Add up the two angles you know:
70º + 70º = 140º

Take this away from 180º to find the missing angle
180º – 140º = **40º**
This is an **acute** angle.

Find the Missing Angle

How could we find angle B in this triangle?



What do we know that can help us?

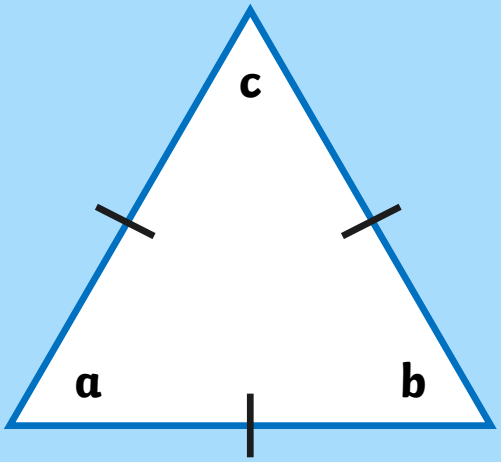
This triangle is a right-angled scalene triangle.

Add together the angles we already know:
90° + 55° = 145°

Take this away from 180° to find the missing angle.
180° – 145° = 35°
This is an **acute** angle

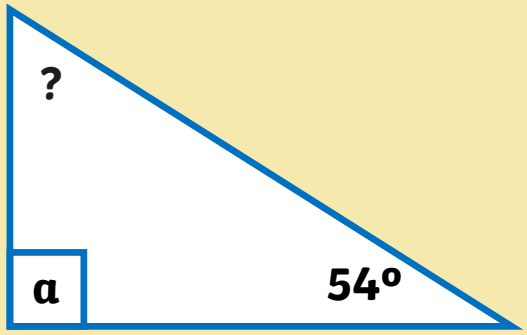
Calculate the Missing Angles

1. Calculate angles **a**, **b** and **c**.
What types of angles are they?



This is an equilateral triangle, so all the angles are **60º**.
These are **acute** angles.

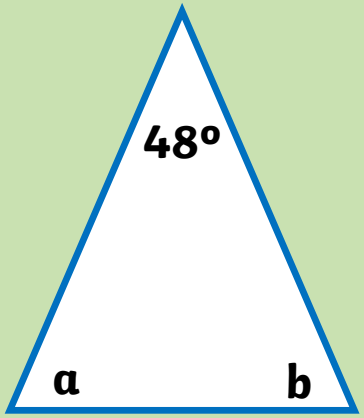
2. Calculate angle **c**.
What type of angle is it?



This is a right-angled scalene triangle.
90º + 54º = 144º
180º – 144º = **36º**
It is an **acute** angle.

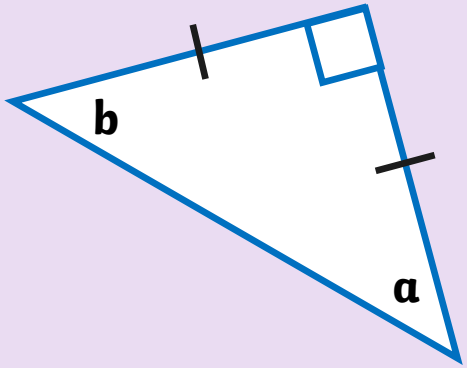
Calculate the Missing Angles

3. Calculate angles **a** and **b.**
What type of angles are they?



This is an isosceles triangle, so angles a and b are the same.
180° - 48° = 132°
132° ÷ 2 = **66°**
They are **acute** angles.

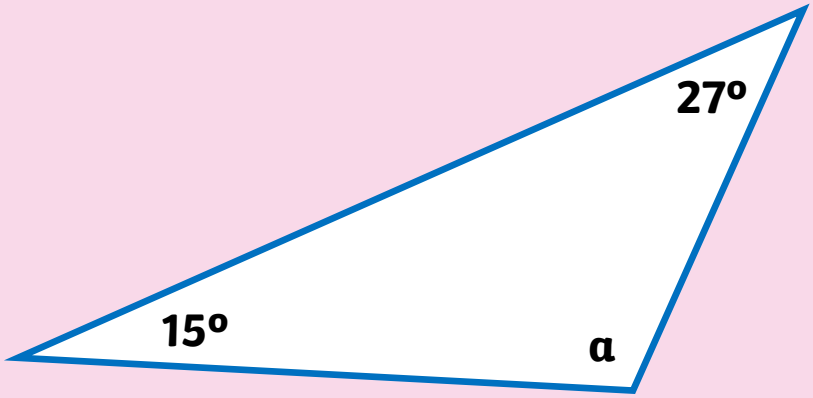
4. Calculate angles **a** and **b**.
What type of angles are they?



This is a right-angled isosceles triangle.
180° - 90° = 90°
90° ÷ 2 = **45°**
They are **acute** angles.

Calculate the Missing Angles

5. Calculate angle **a**. What type of angle is this?



This is a scalene triangle.

$27° + 15° = 42°$

$180° - 42° =$ **138°**

This is an **obtuse** angle.