

Properties of Triangles

Duisebayeva P.
Altynbekov Sh.

Theme of the lesson:

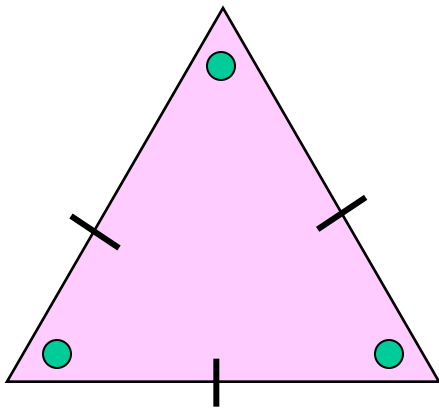
Triangle. Properties of Triangles. Types of triangle.

Aims of the lesson:

- to give the definition of the shape: triangle
- to give the types of triangle

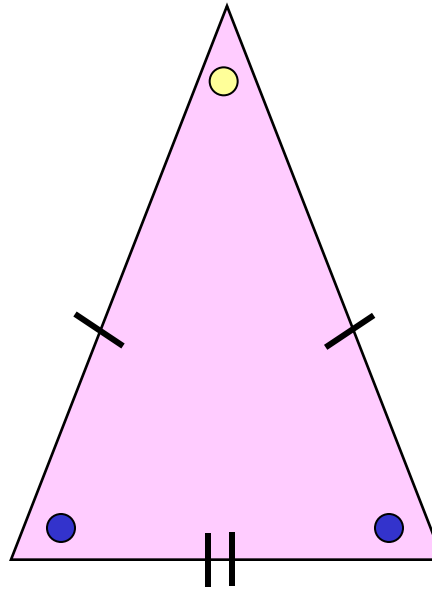
Properties of Triangles

Types of Triangles



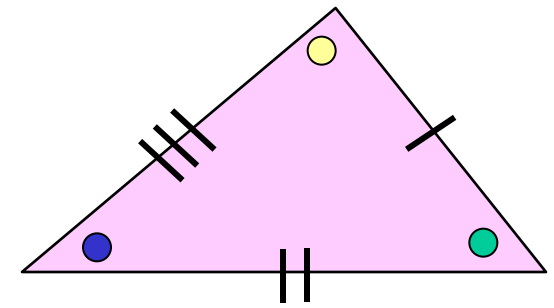
Equilateral Triangle

3 equal sides
3 equal angles.



Isosceles triangle

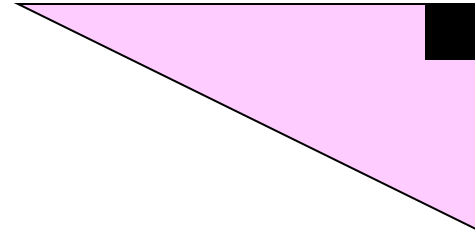
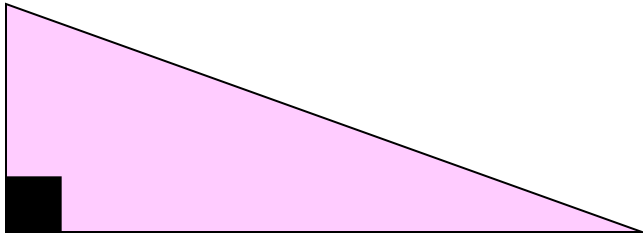
2 equal sides
2 equal angles (base)



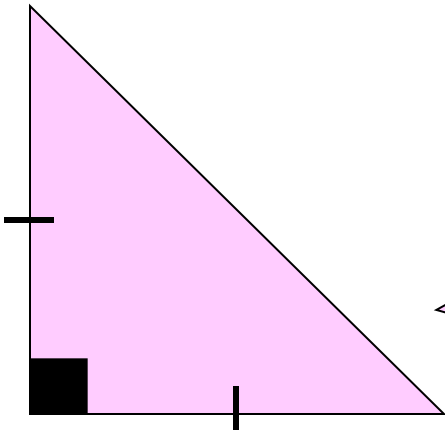
Scalene triangle

3 unequal sides
3 unequal angles

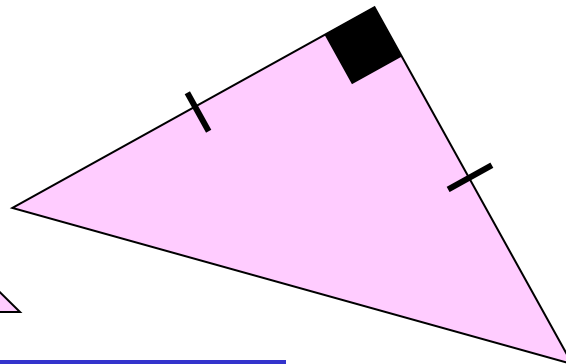
Any triangle containing a 90° angle is a right-angled triangle



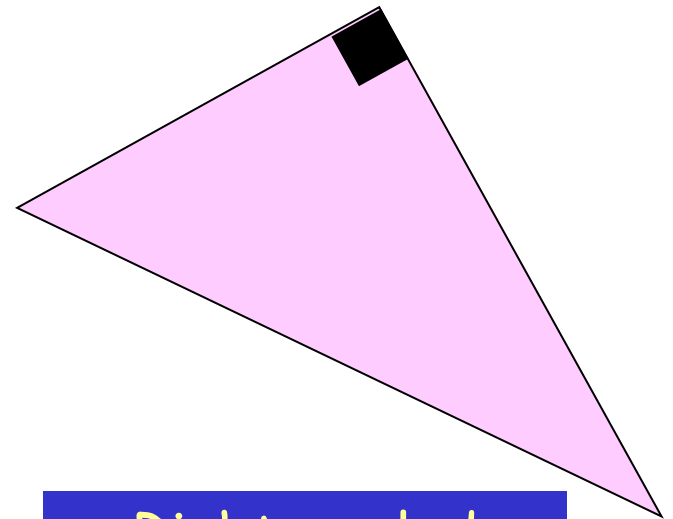
An isosceles or a scalene triangle may contain a right angle.



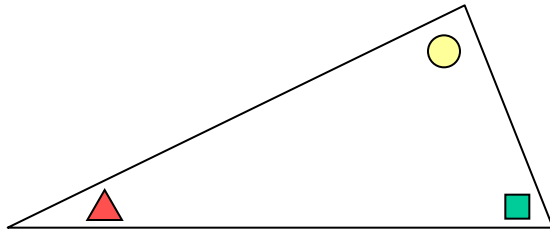
Right-angled
isosceles triangles.



Right-angled
scalene triangle.

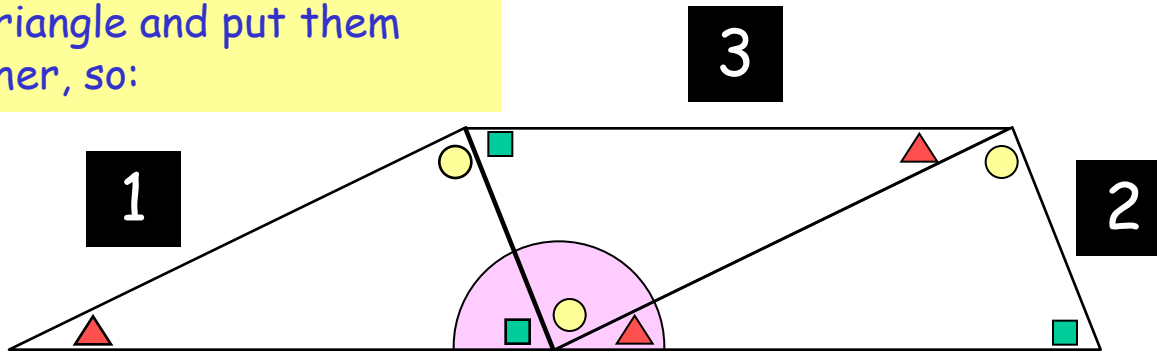


To determine the angle sum of any Triangle



Take 3 identical copies of this triangle and put them together, so:

How can we use this to help us?



Angles on a straight line add to 180°

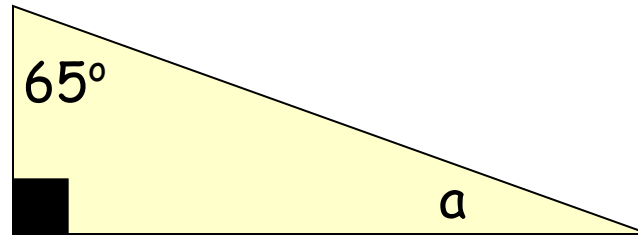
These are the **same** angles as in the triangle!

The angle sum of a triangle = **180°**

Calculating unknown Angles

Example 1

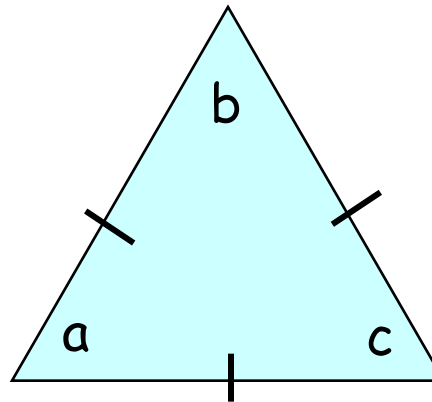
Calculate angle a.



$$\begin{aligned}\text{Angle } a &= 180 - (90 + 65) \\ &= 180 - 155 = 25^\circ\end{aligned}$$

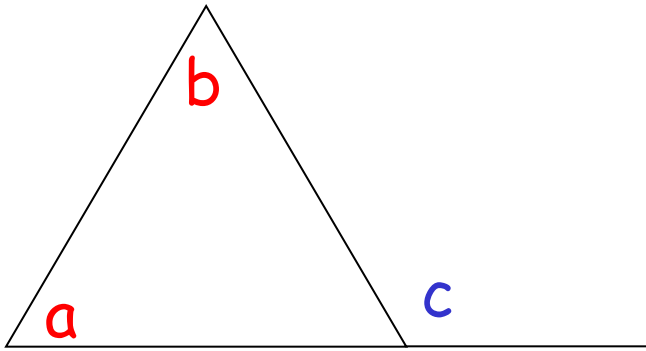
Example 2

Calculate angles a, b and c

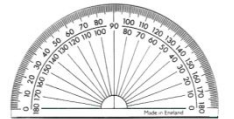
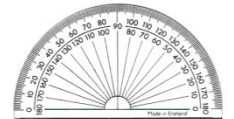


Since the triangle is equilateral, angles a, b and c are all 60° ($180/3$)

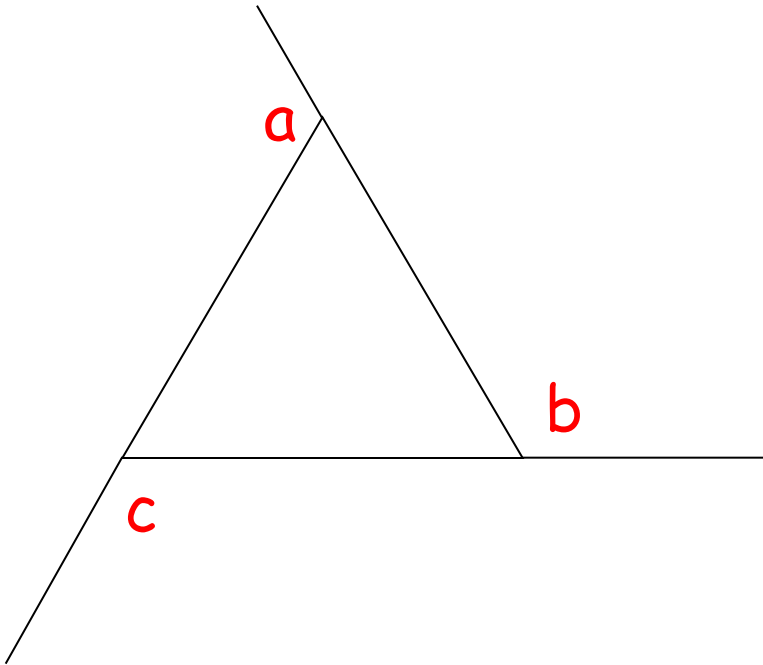
Exterior Angle of a Triangle



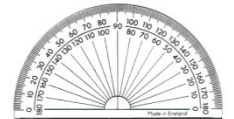
1. Draw a triangle of any size
2. Extend one of the sides
3. Measure angle **a** and **b** accurately using a protractor
4. Add angles **a** and **b** together
5. Measure angle **c** accurately using a protractor
6. What do you notice?



Exterior Angles of a Triangle



1. Draw a second triangle of any size
2. Extend all of the sides
3. Measure angle **a**, **b** and **c** accurately using a protractor
4. Add angles **a**, **b** and **c** together
5. What do you notice?

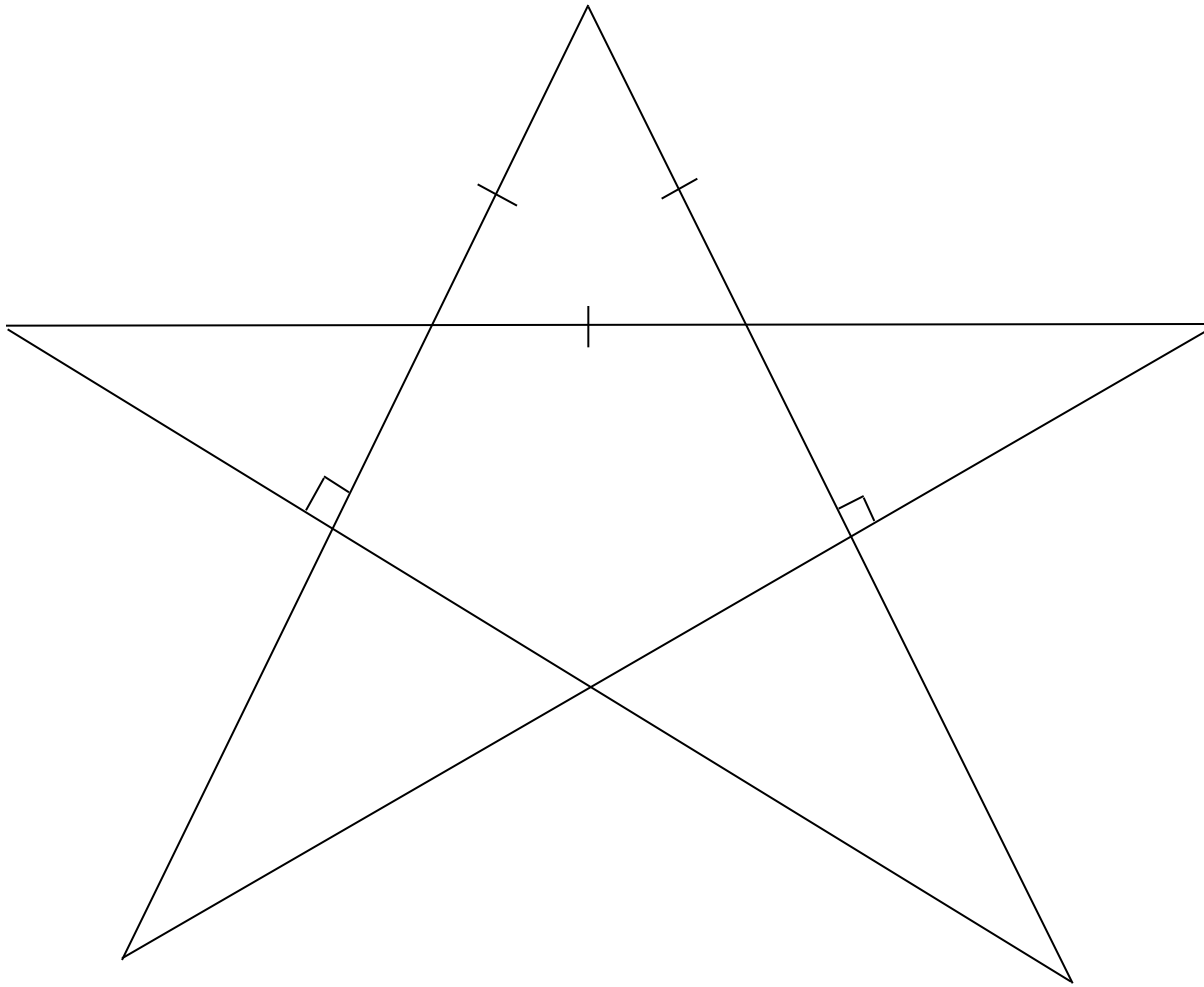


Copy and complete the following statements:

- A triangle with all sides equal is called ...
- A triangle with two sides equal is called ...
- A triangle with no sides equal is called ...

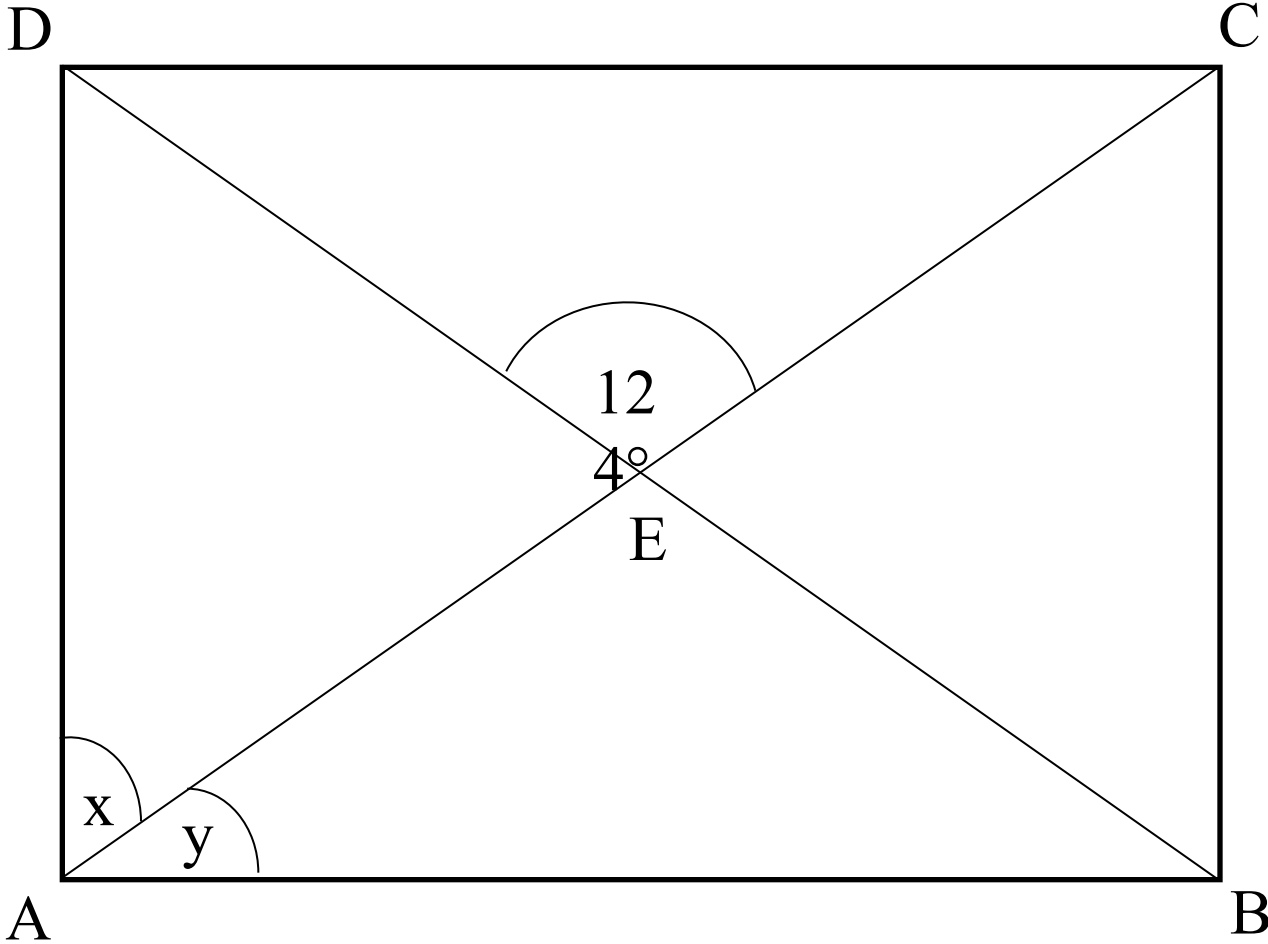
- A triangle with all angles equal is called ...
- A triangle with two (base) angles equal is called ...
- A triangle with one angle of 90° is called ...

- An equilateral triangle has got all equal ... and ...
- An isosceles triangle has got two equal ... and ...
- Two triangles that are identical in shape and size are called ...



**Not drawn accurately*

1. Draw this diagram
2. Calculate all the angles in this star.
3. How many right-angled triangles angles?
4. How many pairs of congruent triangles are there?



1. Draw this diagram
2. Identify 2 pairs of congruent isosceles triangles.
3. Identify four pairs of congruent right-angled triangles.
4. Calculate angles x and y.

Thank you for
attention!!!