

Vertically opposite angles

- Identify parallel and perpendicular lines; know the sum of angles at a point, on a straight line and in a triangle, and recognise vertically opposite angles



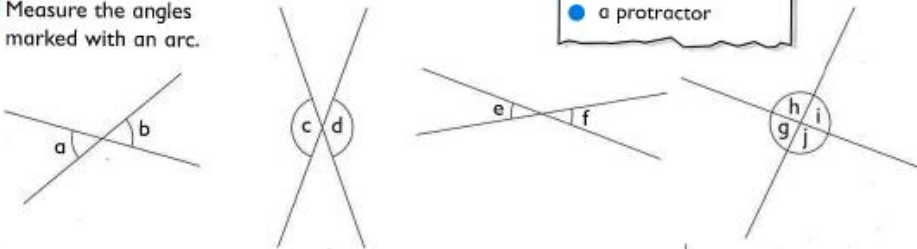
Thales (c 636–546 BC)
Founder: 1st School of Greek Mathematics

When two straight lines intersect, the vertically opposite angles are equal.

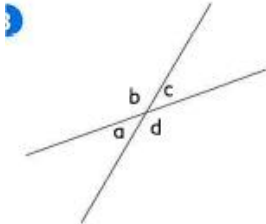
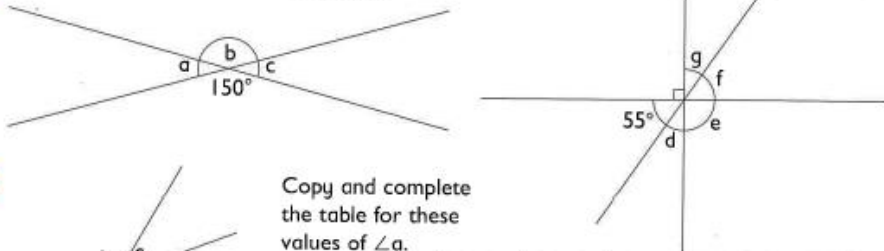
You need:

- a ruler
- a protractor

- 1 Measure the angles marked with an arc.



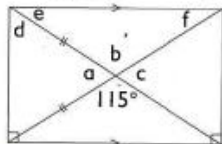
- 2 Calculate the size of the marked angles.



Copy and complete the table for these values of $\angle a$.

$\angle a$	$\angle b$	$\angle c$	$\angle d$	Total
60°				
55°				
48°				
x°				

- 3 Use the information in the diagram to find the sizes of the unknown angles.



Reasoning about lines and angles

- Identify parallel and perpendicular lines; know the sum of angles at a point, on a straight line and in a triangle, and recognise vertically opposite angles

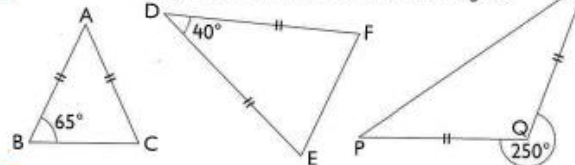


I discovered that the base angles of an isosceles triangle are always equal.

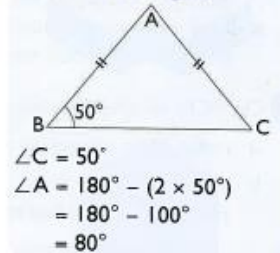
You need:

- a sheet of A4 paper
- scissors
- a ruler

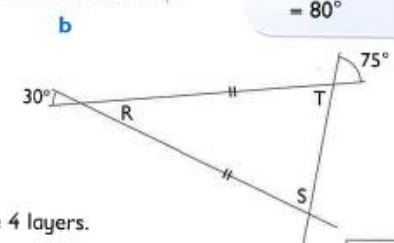
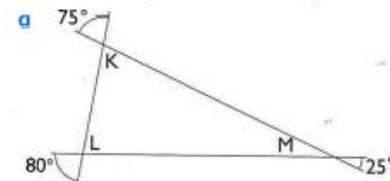
- 1 Find the missing angles in these isosceles triangles.



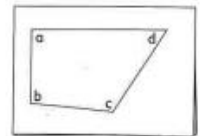
Example



- 2 Use what you know about vertically opposite angles to deduce the size of the angles in each triangle. Check that their sum is 180° .



- 3
- Fold a sheet of A4 paper twice to make 4 layers.
 - Draw any quadrilateral.
 - Cut out through all 4 layers to make 4 identical quadrilaterals.
 - Fit the 4 quadrilaterals round a point.
 - Copy and complete. The 4 angles add to _____ right angles or _____.



- 4 Calculate the missing angles in these quadrilaterals.

