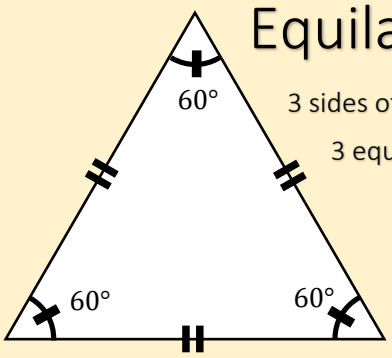
2D Shapes

A guide to their properties, rules and labelling.

Triangles

3 sided shapes
Angles sum to $180°$

Equilateral Triangle



3 sides of equal length.

3 equal angles: $180° \div 3 = 60°$

Key

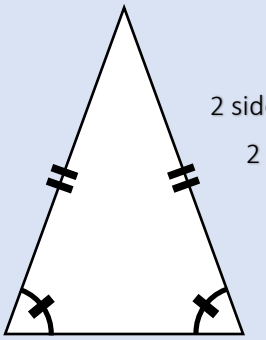
Dashes on edges show that 2 or more edges are equal in length. *You may see shapes which have both single and double dashes to distinguish between different sets of matching lines.*

Dashes on arcs show when there are equal angles.

Arrows on lines show that 2 lines are parallel.

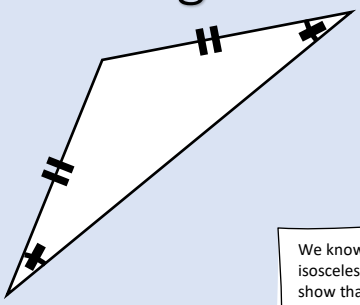
Angles with a box instead of an arc are right angles, $90°$.

Isosceles Triangle

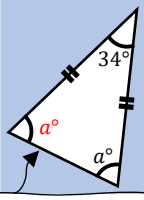


2 sides of equal length.

2 equal angles



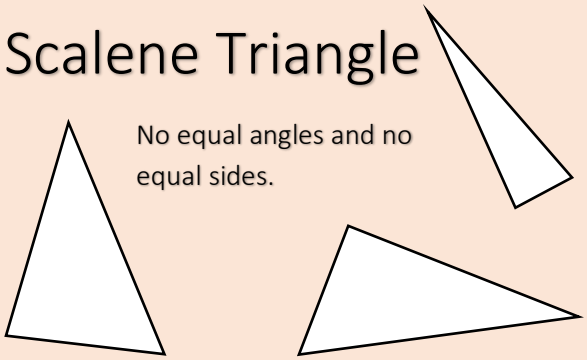
Example: Find the size of angle a in this triangle.



$$180 = 34 + a + a$$
$$180 = 34 + 2a$$
$$-34 \quad -34$$
$$146 = 2a$$
$$\div 2 \quad \div 2$$
$$73 = a°$$

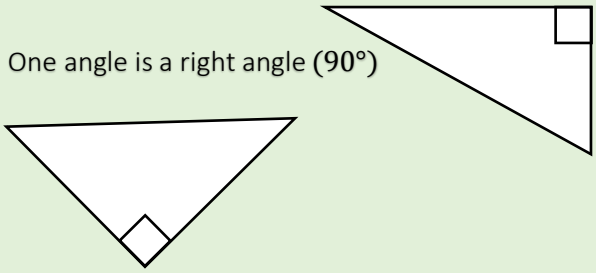
We know that this triangle is isosceles because the dashes show that two sides are equal length. Therefore, we can label the matching angle a as well.

Scalene Triangle



No equal angles and no equal sides.

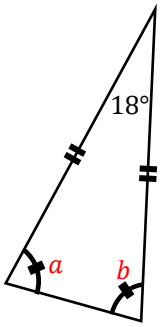
Right-Angled Triangle

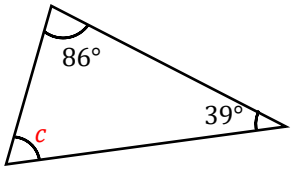


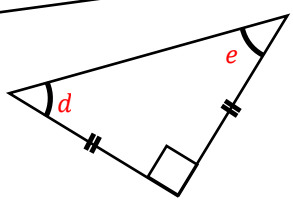
One angle is a right angle $(90°)$

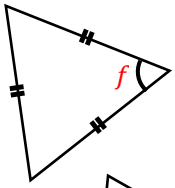
Practice

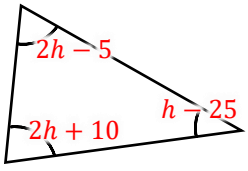
Find the missing angles from these triangles. Use the labelling to help.











$a = 81°$
$b = 81°$
$c = 55°$
$d = 45°$
$e = 45°$
$f = 60°$
$h = 40°$

Quadrilaterals

4 sided shapes

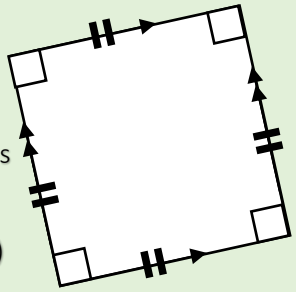
Angles sum to $360°$

Square

4 sides of equal length

2 pairs of parallel sides

4 equal angles (all right angles)

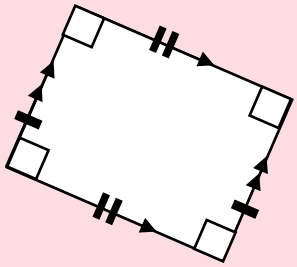


Rectangle

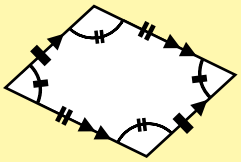
4 equal angles (all right angles)

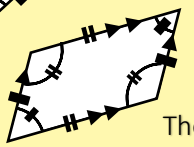
2 pairs of parallel sides

2 pairs of equal length sides



Parallelogram





2 pairs of equal length sides

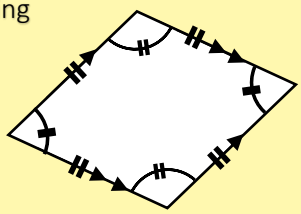
2 pairs of parallel sides

Opposite angles are equal

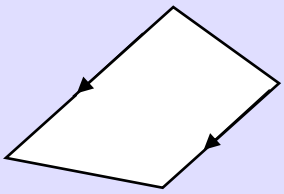
The acute and obtuse angle pairs sum to $180°$

Rhombus

A parallogram with all 4 sides having equal length.

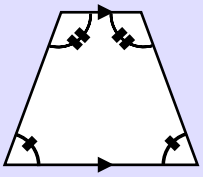


Trapezium



One pair of parallel lines

Isosceles Trapezium

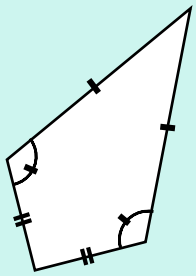


A special type of trapezium with 2 pairs of equal angles, and one pair of equal length sides.

Kite

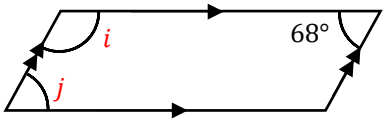
Two pairs of equal length sides

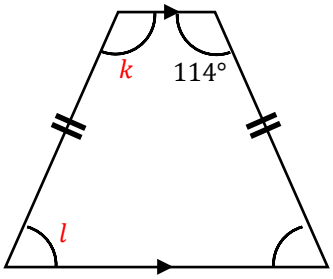
One pair of equal sized angles.

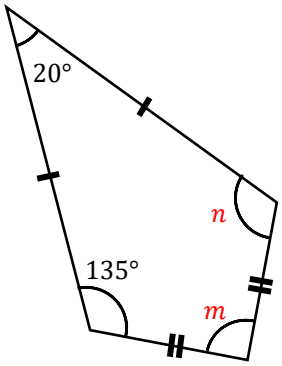


Practice

Find the missing angles from these quadrillaterals. Use the labelling to help.







$i = 112°$

$j = 68°$

$k = 114°$

$l = 66°$

$m = 70°$

$n = 135°$