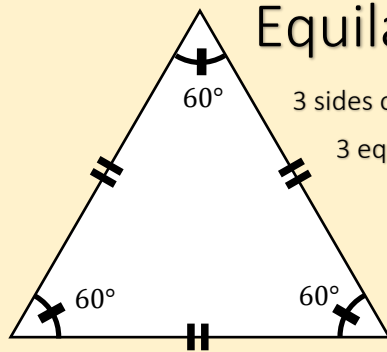


2D Shapes

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: $180^\circ \div 3 = 60^\circ$

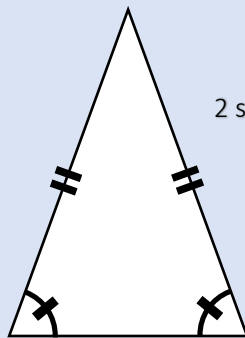
Key

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.

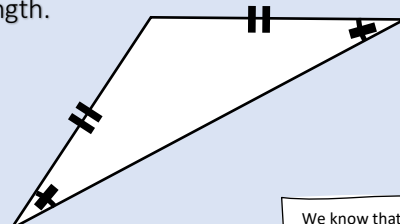
Angles with a box instead of an arc are right angles.



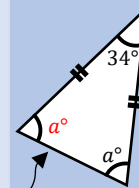
Isosceles Triangle

2 sides of equal length.

2 equal angles



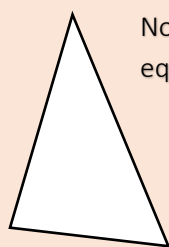
Example: Find the size of angle a in this triangle.



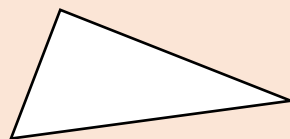
$$\begin{aligned} 180 &= 34 + a + a \\ 180 &= 34 + 2a \\ -34 &-34 \\ 146 &= 2a \\ \div 2 &\div 2 \\ 73 &= a^\circ \end{aligned}$$

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

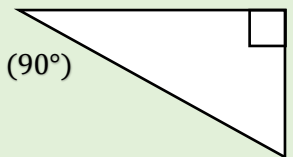
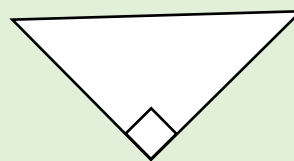


No equal angles and no equal sides.



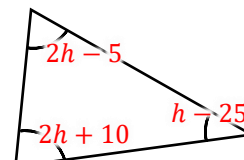
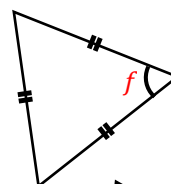
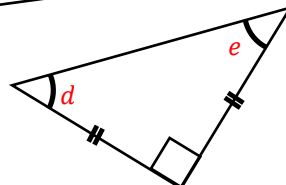
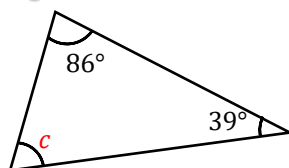
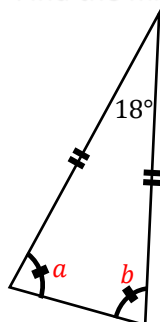
Right-Angled Triangle

One angle is a right angle (90°)



Practice

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



$a =$
 $b =$
 $c =$
 $d =$
 $e =$
 $f =$
 $h =$





Quadrilaterals

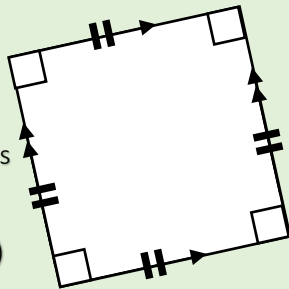
Angles sum to 360° ^{4 sided shapes}

Square

4 sides of equal length

2 pairs of parallel sides

4 equal angles
(all right angles)

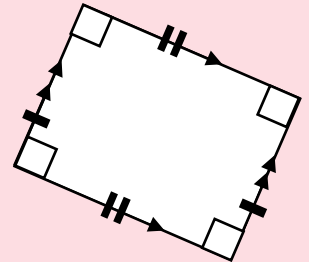


Rectangle

4 equal angles
(all right angles)

2 pairs of parallel sides

2 pairs of equal length sides



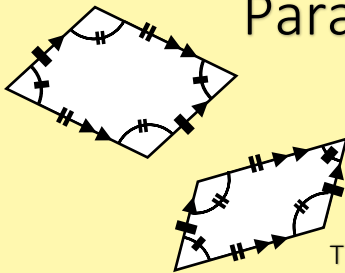
Parallelogram

2 pairs of equal length sides

2 pairs of parallel sides

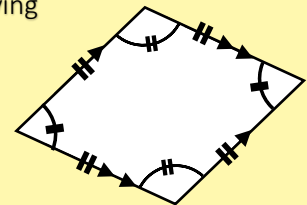
Opposite angles are equal

The acute and obtuse angle pairs
sum to 180°



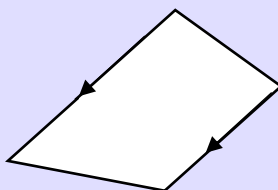
Rhombus

A parallelogram with
all 4 sides having
equal length.



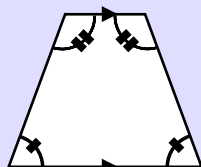
Trapezium

One pair of parallel lines



Isosceles Trapezium

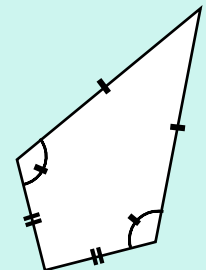
A special type of trapezium
with 2 pairs of equal angles,
and one pair of equal length
sides.



Kite

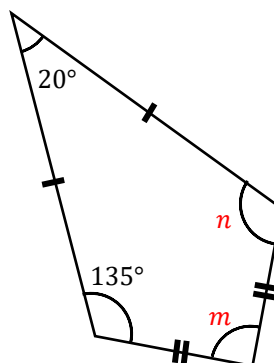
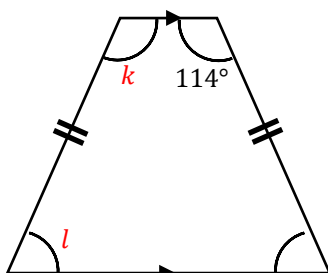
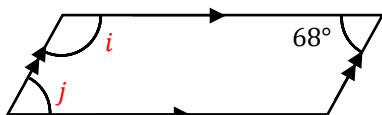
Two pairs of equal length sides

One pair of equal sized angles.



Practice

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



$i =$

$j =$

$k =$

$l =$

$m =$

$n =$

