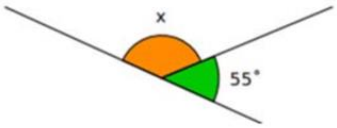
Geometry and Measure 2 – Investigating Angles and Shapes – Knowledge Organiser

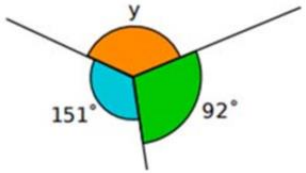
Objective
Solve problems using a variety of angle rules
Identify and use angle rules involving parallel lines
Identify similarity in shapes
Find missing lengths in similar shapes

Key Facts



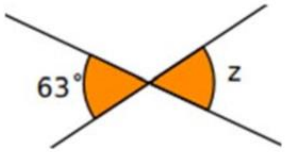
Angles on a straight line add up to 180^0

$x + 55^0 = 180^0$



Angles around a point add up to 360^0

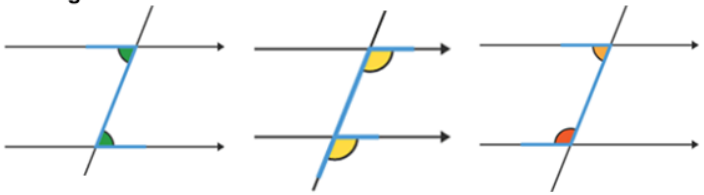
$y + 92^0 + 151^0 = 360^0$



Vertically opposite angles are equal

$z = 63^0$

- **Angles on Parallel lines:**



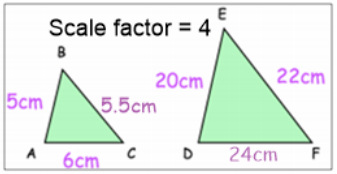
Alternate angles are equal (Z)

Corresponding angles are equal (F)

Allied angles add to 180^0 (U)

- Angles in a **triangle** add to 180^0
- Angles in a **quadrilateral** add to 360^0

- **Similar shapes** have got the same shape and a different size.
  - They can be flipped and rotated
  - They have the same angles and their the ratios of their corresponding sides are equal



Key words used in this unit:

Parallel – lines that are parallel will never meet

Perpendicular – a line that is at right angles to a second line

Right angle - 90^0

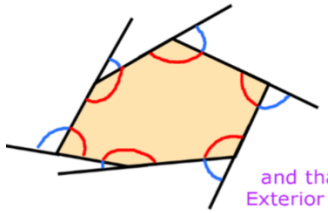
Acute angle – an angle between 0^0 and 90^0

Obtuse angle - an angle that is greater than 90^0 but less than 180^0

Reflex angle – an angle greater than 180^0 but less than 360^0

Scale factor - also called multiplier. You multiply all the sides of a shape by the scale factor when you enlarge a shape.

For any n-sided polygon

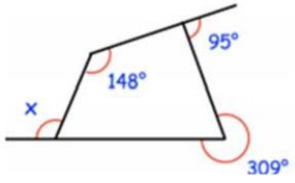


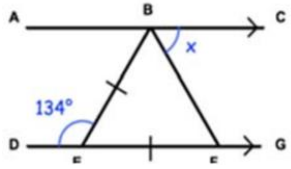
Interior angles sum to $180(n-2)$

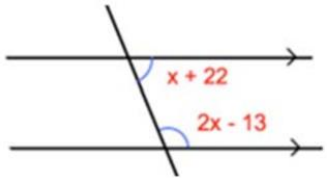
Exterior angles sum to $360°$

and that for each pair of angles the Exterior Angle + Interior Angle = $180°$

Key Concept Check







Use your knowledge of angle rules to find the value of x in each of these diagrams. Give reasons for your answer.