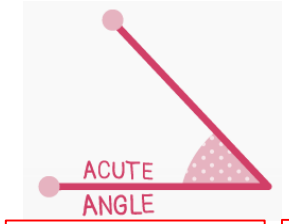
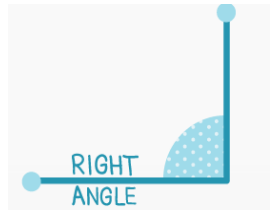
Knowledge Organiser: Parallel Lines and Angle Facts

What you need to know:

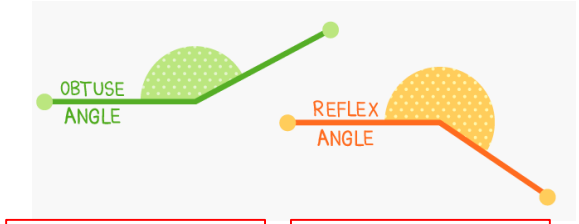
Types of Angles



Less than 90°



90° angle



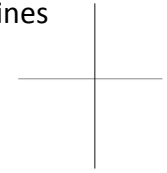
Bigger than 90° but less than 180°

Bigger than 1800° but less than 360°

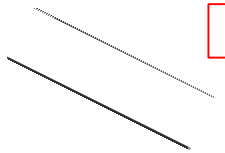
Types of Lines

Perpendicular Lines

Intersect (cross) at 90°



Parallel Lines

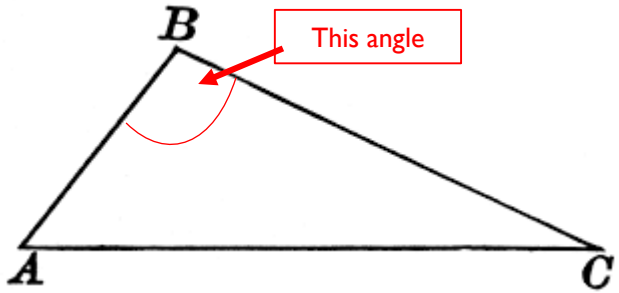


Never meet

Angle Notation

Angles are measured in degrees (°).
An angle can be identified like this
The middle letter is the vertex.

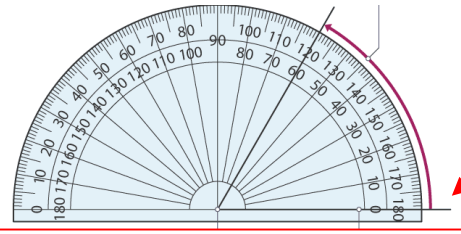
$\angle ABC$



This angle

Measuring Angles

When measuring angles, make sure that the centre of the protractor is over the **vertex** (corner) of the angle and that the base line of the protractor is along one of the lines of the angle



Always read from zero. In this example use the inside scale

Ensure the centre and base line are lined up with the angle lines

Key Terms:

Line segment – a line between two points

Point – An exact location.

Intersecting – where two or more lines cross, their common point.

Angle – the amount of turn between two lines and their common point.

Vertically Opposite – angles formed when two or more straight lines cross at a point.

Parallel – always the same distance apart and never touching.

Vertex (plural Vertices) – a corner

Perpendicular – at right angles

You need to be able to:

- Estimate the size of angles;
- Measure angles using a protractor;
- Use letters to identify points, lines and angles;
- Describe angles as turns and in degrees and *understand* clockwise and anticlockwise.
- Know that 360° is a full turn, 180° is a half turn and 90° is a quarter turn.
- Find missing angles using corresponding and alternate angles.
- Understand and use angle properties of parallel lines.

Hegarty maths clip numbers

Estimating and Measuring: 457 – 460

Types of lines and angles: 455- 456

Angle Facts: 477 - 484

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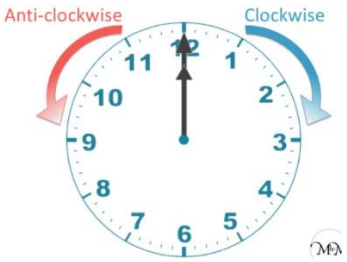
Reminder:

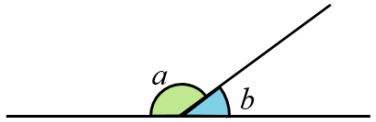


Knowledge Organiser: Parallel Lines and Angle Facts

What you need to know:

Angles on a straight line

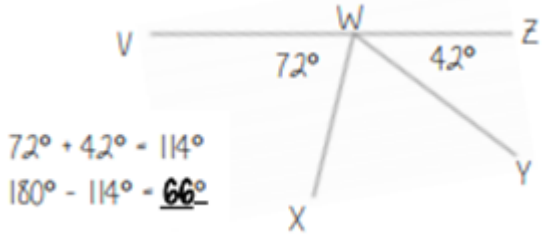
Angles on a straight line add up to 180°



$a + b = 180°$

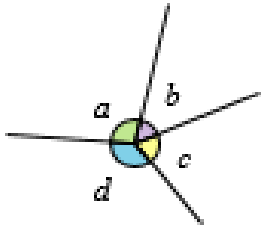
because there are 180° in a half turn.

Example – Find angle XWY



Angles around a point

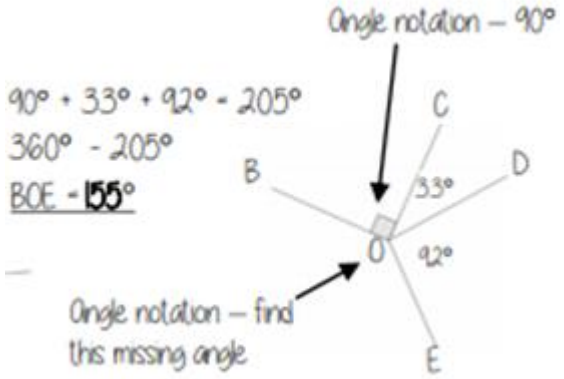
Angles around a point add up to 360°



$a + b + c + d = 360°$

because there are 360° in a full turn.

Example – Find BOE

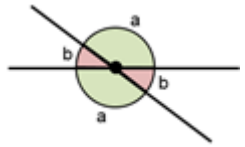


TIP -

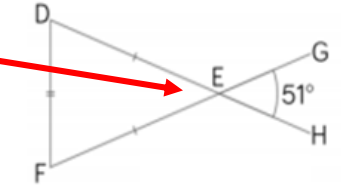
Sometimes you will need to use more than one angle fact to solve a problem

Vertically Opposite angles

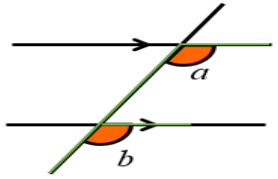
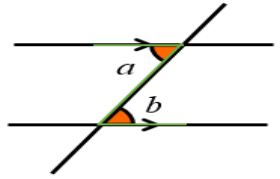
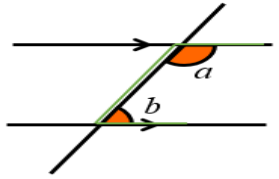
Vertically opposite angles are equal



= 51° because it is vertically opposite

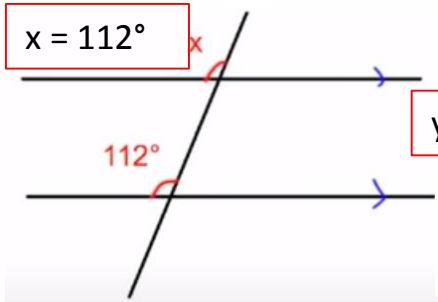


Angles on parallel lines

Corresponding angles are equal	Alternate angles are equal	Interior angles add up to 180°
		
$a = b$	$a = b$	$a + b = 180°$
Look for an F-shape	Look for a Z-shape	Look for a C- or U-shape

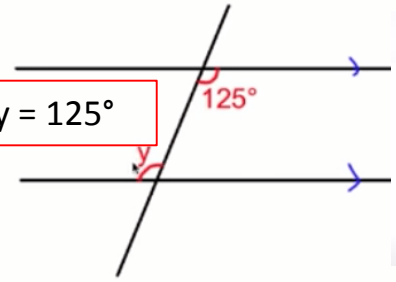
Examples –

x = 112°

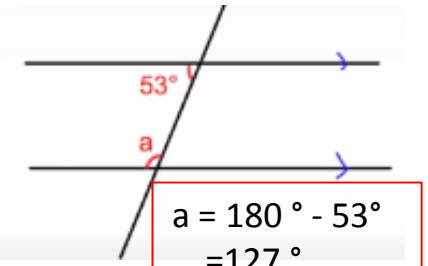


The 'F' can go in any direction.

y = 125°



The 'Z' can go in any direction.



a = 180 ° - 53°
=127 °

The 'C' can go in any direction.