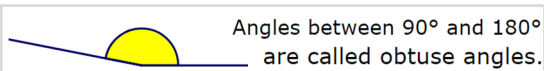
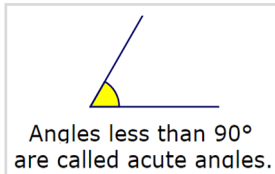
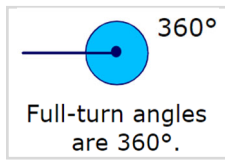
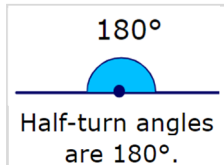
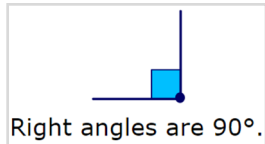


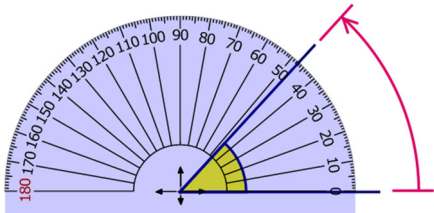
1. Angle facts



Year 7 - Angles

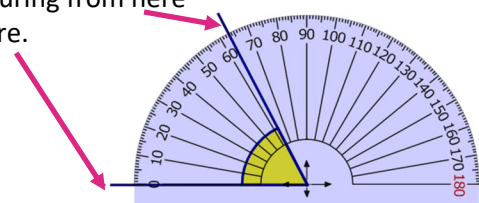
3. Measuring angles

To measure angles we use a protractor.
Move the centre of the protractor to where the two lines meet. The zero line needs to line up with one of the lines.
We read the scale where the top line crosses



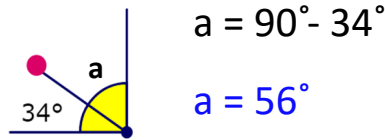
This angle is facing the opposite direction to the last one.

This time we are measuring from here to here.

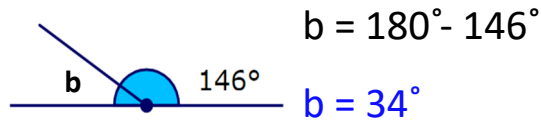


So we use the zero on the other side.

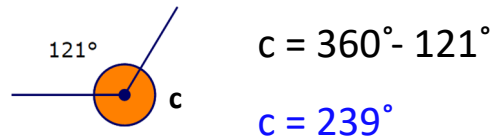
2. Applying angle facts



Angles in a right angle always add up to 90° .



Angles on a straight line always add up to 180° .



Angles around a point always add up to 360° .

4. Angles in a triangle



Angles in a triangle add to 180°

A. Sum of angles on polygons

Here is a pentagon. To find the sum of its interior angles we choose one of its vertices and join it to every other vertex as shown

The pentagon is formed of three triangles.
Sum of interior angles = $180^\circ \times 3 = 540^\circ$

The sum of interior angles of a shape with n sides is $180^\circ \times (n - 2)$

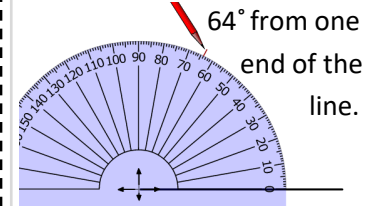
4. Constructing shapes using a ruler and protractor

Draw a triangle with sides 6cm and 5cm, with an angle of 64° in between.

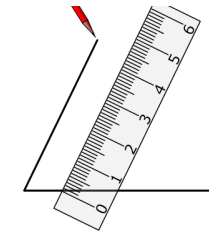
Step 1 - Draw a 6cm line.



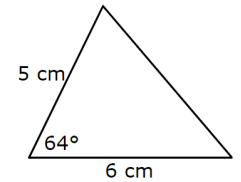
Step 2 - Measure an angle of



Step 3 - Draw a 5cm line which passes through the red mark.



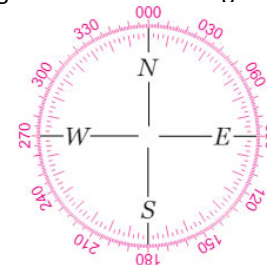
Step 4 - Draw the line which connects to make the triangle.



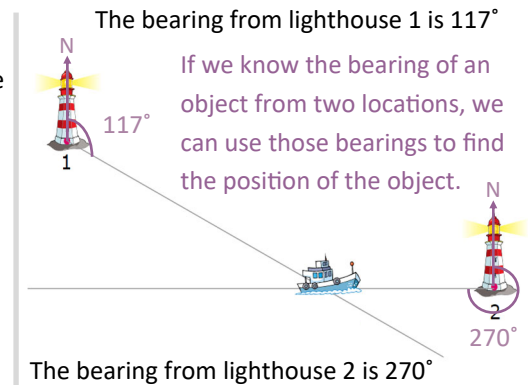
5. Bearings

To describe directions accurately we use **bearings**.

Bearings are a clockwise angle from North.



Bearings are always written using 3 figures, so 1° is written 001°



6. Angles in a polygon

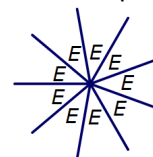
B. Interior and exterior angles

Every polygon has **interior angles** and **exterior angles**.

The **exterior angle** can be found by reducing the size of the polygon down to a point.

This nonagon has been reduced to 9 equal angles around a point.

$$360^\circ \div 9 = 40^\circ$$



The **interior angle** can be found by using the exterior angle and considering angles on a straight line.

$$180^\circ - 40^\circ = 140^\circ$$

