

Sum of angles at a point

The sum of angles around a point is 360°

Find angle BOE

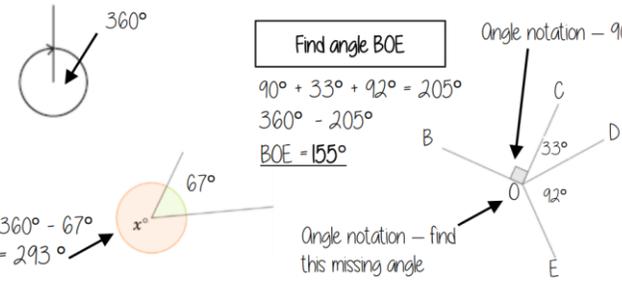
$$90^\circ + 33^\circ + 92^\circ = 205^\circ$$

$$360^\circ - 205^\circ$$

$$BOE = 155^\circ$$

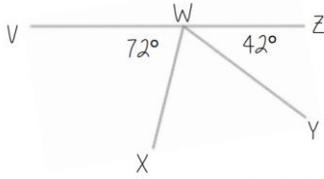
Angle notation – 90°

Angle notation – find this missing angle



Sum of angles on a straight line

Adjacent angles that share a common point on a line add up to 180°



Find angle XWY

$$72^\circ + 42^\circ = 114^\circ$$

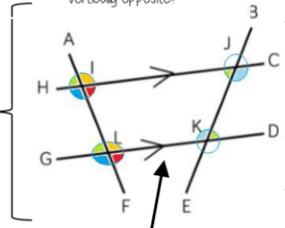
$$180^\circ - 114^\circ = 66^\circ$$

Parallel lines

Still remember to look for angles on straight lines, around a point and vertically opposite!

Lines OF and BE are transversals (lines that bisect the parallel lines)

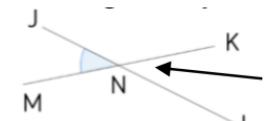
Corresponding angles often identified by their "F shape" in position



Alternate angles often identified by their "Z shape" in position

This notation identifies parallel lines

Vertically opposite angles



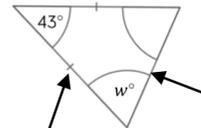
Angle JNM is vertically opposite to angle KNL

$$JNM = KNL$$

Vertically opposite angles are the same

Sum of angles in triangles

Sum of interior angles in a triangle = 180°



The two base angles will be the same size

Look at triangle notation
This indicates an isosceles triangle
 $\therefore 180 - 43 = 137$
 $137 \div 2 = 68.5^\circ$

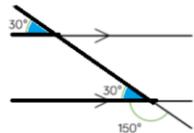
A triangle can only have ONE right angle



Have a go!

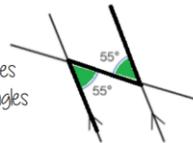
Tearing the corners from triangles forms a straight line which is therefore 180°

Alternate/ Corresponding angles

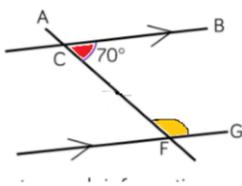


Because alternate angles are equal the highlighted angles are the same size

Because corresponding angles are equal the highlighted angles are the same size



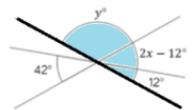
Co-interior angles



Because co-interior angles have a sum of 180° the highlighted angle is 110°

As angles on a line add up to 180° co-interior angles can also be calculated from applying alternate/ corresponding rules first

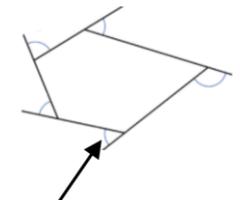
Other angle rules still apply
Look for straight line sums and angles around a point



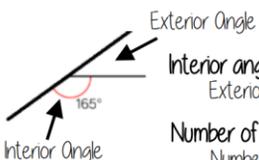
Form equations with information from diagrams:
 $2x - 12 = 42$
 $2x = 54$
 $x = 27^\circ$

Sum of exterior angles

Exterior angles all add up to 360°



Using exterior angles



Interior angle + Exterior angle = straight line = 180°
Exterior angle = $180 - 165 = 15^\circ$

Number of sides = $360^\circ \div$ exterior angle
Number of sides = $360 \div 15 = 24$ sides

Exterior Angles
Are the angle formed from the straight-line extension at the side of the shape

Sum of interior angles

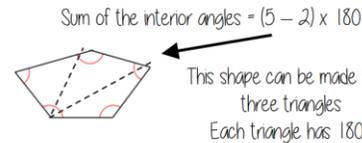
(number of sides - 2) x 180°

Interior Angles

The angles enclosed by the polygon



This is an irregular polygon – the sides and angles are different sizes



Sum of the interior angles = $(5 - 2) \times 180$

This shape can be made from three triangles
Each triangle has 180°

Sum of the interior angles = $3 \times 180 = 540^\circ$

Remember this is all of the interior angles added together

Missing angles in regular polygons



Exterior angle = $360 \div 8 = 45^\circ$

Interior angle = $\frac{(8-2) \times 180}{8} = \frac{6 \times 180}{8} = 135^\circ$

Exterior angles in regular polygons = $360^\circ \div$ number of sides

Interior angles in regular polygons = $\frac{(\text{number of sides} - 2) \times 180}{\text{number of sides}}$

