Year 8 foundation topic 7

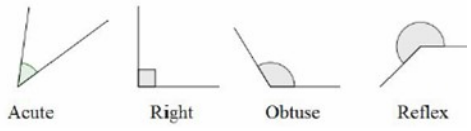
Lines and angles

Angle facts

Angles in a triangle add up to 180˚

Angles at a point add up to 360˚

Angles on a straight line add up to 180˚



What careers would use these skills?

Urban and regional planners, surveying engineers, architects, cartographer (for drawing maps)

Algebra with angles

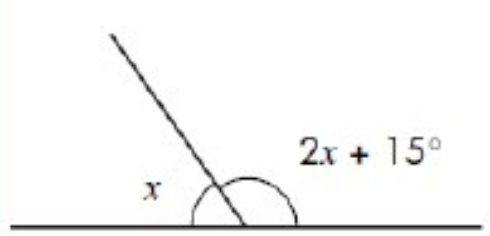
Add together the angles that you know, make it equal to the angle sum and then solve.

2x + 15 + x = 180

3x + 15 = 180

3x = 165

x = 55˚



Quadrilateral angle facts

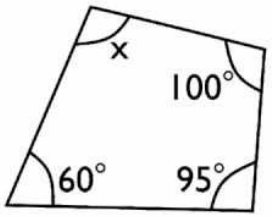
The 4 angles in a quadrilateral add up to 360˚

A rhombus and a parallelogram has 2 opposite pairs of equal angles

A kite has one pair of equal angles

A square and rectangle have 4 angles of 90˚

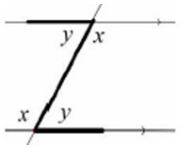
Eg.

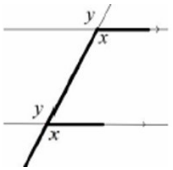


The angles add up to 255 so the missing angle is 105˚

Angles in parallel lines

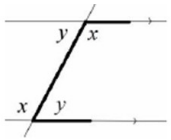
Alternate angles are equal. They look like a Z (but don't say that in an exam!)





Corresponding angles are equal. They look like F angles, but never say this in the exam.

Co-interior angles add up to 180˚. They look like C angles, but never say this in the exam.



Use reasoning with geometrical problems

When answering angle questions you will often be asked to give reasons for your answers, this is an explanation of your calculations and the rules you have used.

Ensure that your explanation is clear and you justify every step.

Interior angles of a polygon

Sum of interior angles = (number of sides—2) x 180

Eg. For a decagon

(10—2) x 180 = 1440˚

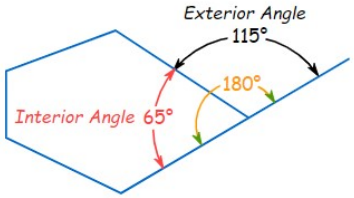
So one interior angle of a decagon is 1440 ÷ 10 = 144˚

Exterior angles of a polygon

Size of one exterior angle = 360 ÷ number of sides

Eg. An exterior angle of a regular octagon

360 ÷ 8 = 45˚



Interior + exterior = 180˚