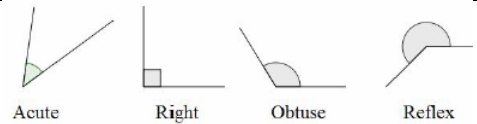
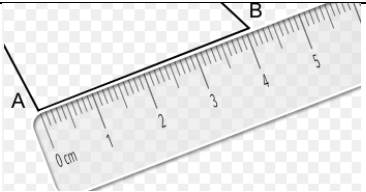
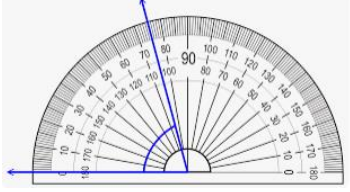
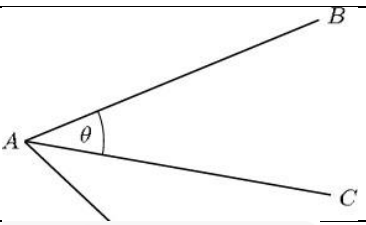
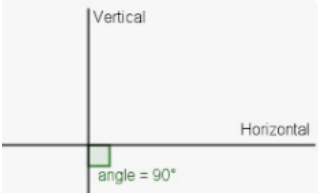
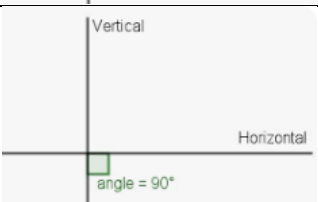
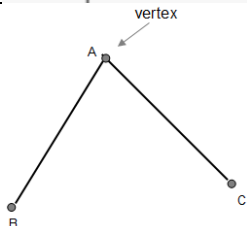
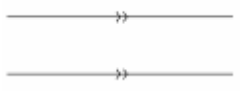
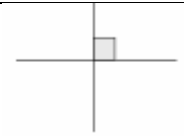
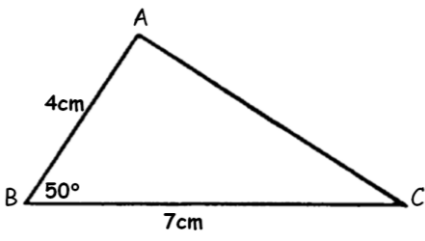
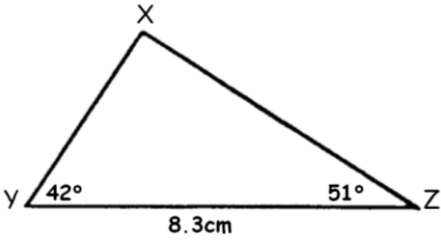
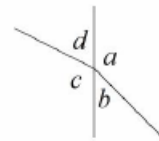
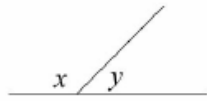
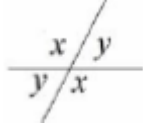
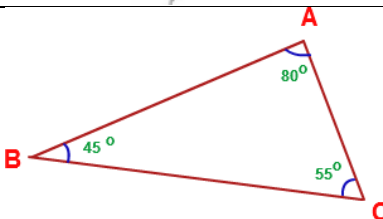
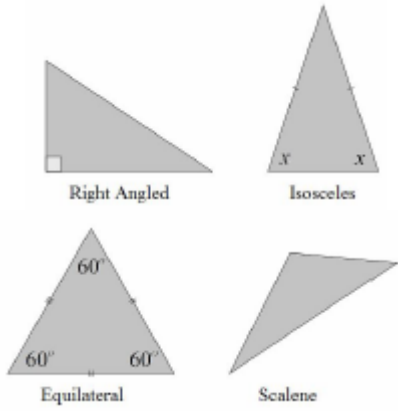
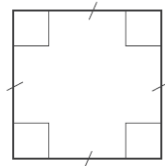
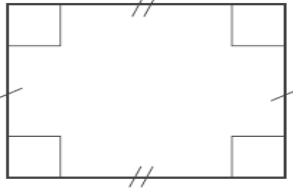
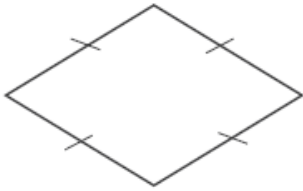
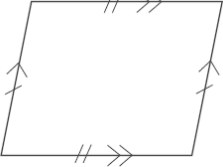
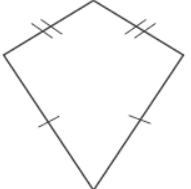
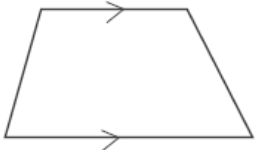
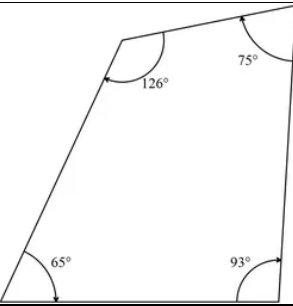
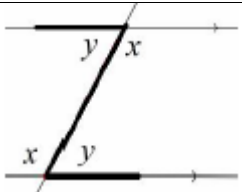
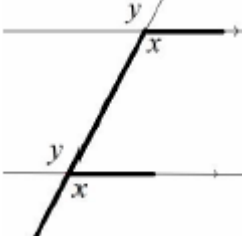
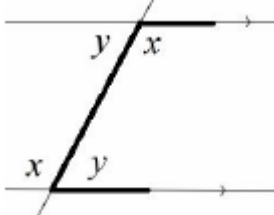
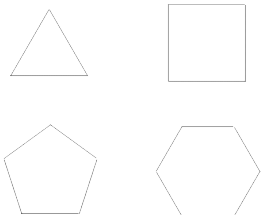
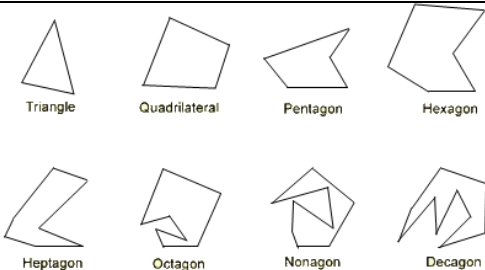


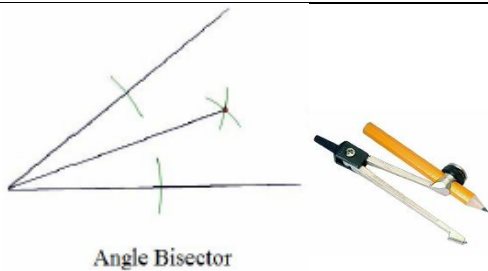
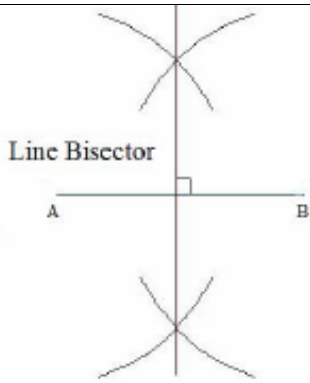
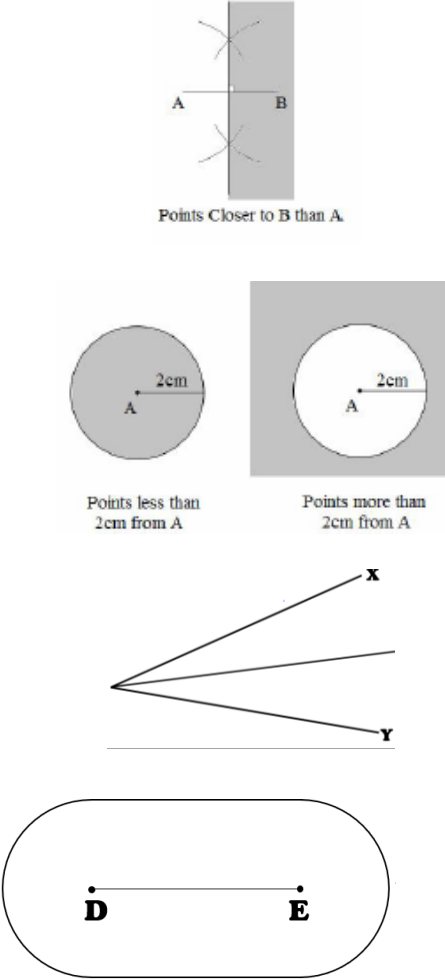
Topic: Angles Year 8

Topic/Skill	Definition/Tips	Example
Types of Angles	Acute angles are less than 90°. Right angles are exactly 90°. Obtuse angles are greater than 90° but less than 180°. Reflex angles are greater than 180° but less than 360°.	 Acute Right Obtuse Reflex
Measuring Lines	Measure in cm and mm There are 10mm in a cm Place the 0 of the ruler onto the end of the line	
Measure and draw angles with a protractor	Always measure and draw an angle from the zero. Check which way round you need to use the protractor. To draw an angle, draw a horizontal line and mark a dot at one end. Place the centre crosshair of the protractor on the dot and mark the angle	
Angle Notation	Can use one lower-case letters, eg. θ or x Can use three upper-case letters, eg. BAC	
Horizontal	A straight line that goes from left to right or right to left.	
Vertical	A straight line that goes from top to bottom and is perpendicular (at right angles) to the horizontal	
Vertex	A corner or a point where two lines meet.	
Parallel	Parallel lines never meet.	
Perpendicular	Perpendicular lines are at right angles. There is a 90° angle between them.	

Constructing Triangles (Side, Angle, Side)	1. Draw the base of the triangle using a ruler. 2. Measure the angle required using a protractor and mark this angle. 3. Remove the protractor and draw a line of the exact length required in line with the angle mark drawn. 4. Connect the end of this line to the other end of the base of the triangle.	
Constructing Triangles (Angle, Side, Angle)	1. Draw the base of the triangle using a ruler. 2. Measure one of the angles required using a protractor and mark this angle. 3. Draw a straight line through this point from the same point on the base of the triangle. 4. Repeat this for the other angle on the other end of the base of the triangle.	
Angles at a Point	Angles around a point add up to 360°.	 $a + b + c + d = 360^\circ$
Angles on a Straight Line	Angles around a point on a straight line add up to 180°.	 $x + y = 180^\circ$
Opposite Angles	Vertically opposite angles are equal.	
Angles in a Triangle	Angles in a triangle add up to 180°.	
Types of Triangles	Right Angle Triangles have a 90° angle in. Isosceles Triangles have 2 equal sides and 2 equal base angles. Equilateral Triangles have 3 equal sides and 3 equal angles (60°). Scalene Triangles have different sides and different angles. Base angles in an isosceles triangle are equal.	

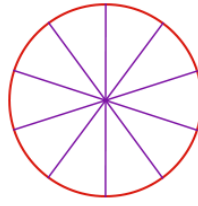
Properties of Quadrilaterals Square	• Four equal sides • Four right angles • Opposite sides parallel • Diagonals bisect each other at right angles • Four lines of symmetry Rotational symmetry of order four	
Rectangle	• Two pairs of equal sides • Four right angles • Opposite sides parallel • Diagonals bisect each other, not at right angles • Two lines of symmetry • Rotational symmetry of order two	
Rhombus	• Four equal sides • Diagonally opposite angles are equal • Opposite sides parallel • Diagonals bisect each other at right angles • Two lines of symmetry • Rotational symmetry of order two	
Parallelogram	• Two pairs of equal sides • Diagonally opposite angles are equal • Opposite sides parallel • Diagonals bisect each other, not at right angles • No lines of symmetry • Rotational symmetry of order two	
Kite	• Two pairs of adjacent sides of equal length • One pair of diagonally opposite angles are equal (where different length sides meet) • Diagonals intersect at right angles, but do not bisect • One line of symmetry • No rotational symmetry	
Trapezium	• One pair of parallel sides • No lines of symmetry • No rotational symmetry Special Case: Isosceles Trapeziums have one line of symmetry.	
Angles in a Quadrilateral	Angles in a quadrilateral add up to 360°.	

Alternate Angles	Alternate angles are equal. They look like Z angles, but never say this in the exam.	
Corresponding Angles	Corresponding angles are equal. They look like F angles, but never say this in the exam.	
Co-Interior Angles	Co-Interior angles add up to 180°. They look like C angles, but never say this in the exam.	
Polygon	A 2D shape with only straight edges .	Rectangle, Hexagon, Decagon, Kite etc.
Regular	A shape is regular if all the sides and all the angles are equal .	
Names of Polygons	3-sided = Triangle 4-sided = Quadrilateral 5-sided = Pentagon 6-sided = Hexagon 7-sided = Heptagon/Septagon 8-sided = Octagon 9-sided = Nonagon 10-sided = Decagon	 Triangle Quadrilateral Pentagon Hexagon Heptagon Octagon Nonagon Decagon
Sum of Interior Angles	$\frac{(n - 2) \times 180}{n}$ where n is the number of sides.	Sum of Interior Angles in a Decagon = $(10 - 2) \times 180 = 1440^\circ$
Size of Interior Angle in a Regular Polygon	$\frac{(n - 2) \times 180}{n}$ You can also use the formula: $180 - \text{Size of Exterior Angle}$	Size of Interior Angle in a Regular Pentagon = $\frac{(5 - 2) \times 180}{5} = 108^\circ$
Size of Exterior Angle in a Regular Polygon	$\frac{360}{n}$ You can also use the formula: $180 - \text{Size of Interior Angle}$	Size of Exterior Angle in a Regular Octagon = $\frac{360}{8} = 45^\circ$

Angle Bisector	Angle Bisector: Cuts the angle in half. 1. Place the sharp end of a pair of compasses on the vertex. 2. Draw an arc, marking a point on each line. 3. Without changing the compass put the compass on each point and mark a centre point where two arcs cross over. 4. Use a ruler to draw a line through the vertex and centre point.	 Angle Bisector
Perpendicular Bisector	Perpendicular Bisector: Cuts a line in half and at right angles. 1. Put the sharp point of a pair of compasses on A. 2. Open the compass over half way on the line. 3. Draw an arc above and below the line. 4. Without changing the compass, repeat from point B. 5. Draw a straight line through the two intersecting arcs.	 Line Bisector
Loci and Regions	A locus is a path of points that follow a rule. For the locus of points closer to B than A, create a perpendicular bisector between A and B and shade the side closer to B. For the locus of points equidistant from A, use a compass to draw a circle, centre A. For the locus of points equidistant to line X and line Y, create an angle bisector. For the locus of points a set distance from a line, create two semi-circles at either end joined by two parallel lines.	 Points Closer to B than A Points less than 2cm from A Points more than 2cm from A X Y D E

Equidistant

A point is equidistant from a set of objects if the **distances between that point and each of the objects is the same.**



Where else is the Angles topic used in maths?

Transformations

Algebra

Links to other subjects