

# Y8 Maths Knowledge Organiser Topic 8: Angles 2

<p><b>What must I be able to do?</b></p> <p>You may need to revise the following:</p> <ul style="list-style-type: none"> <li>• <a href="#">Year 7 Topic 12: Angles 1</a></li> </ul> <p><b>New content:</b></p> <ul style="list-style-type: none"> <li>□ Identify the different types of angles formed by parallel lines and a transversal such as corresponding angles, alternate angles and interior angles             <ul style="list-style-type: none"> <li>➤ <a href="#">Mathswatch G18</a></li> </ul> </li> <li>□ Use the various properties of angles to find unknown angles</li> <li>□ Find unknown angles in geometrical figures involving square, rectangle, parallelogram, rhombus, trapezium and triangle</li> </ul>	<p><b>Key vocabulary</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Parallel Lines</td> <td style="padding: 2px;">Straight lines which go in the same direction and <u>never meet</u>.</td> </tr> <tr> <td style="padding: 2px;">Transversal</td> <td style="padding: 2px;">A <u>straight line</u> which passes <u>through</u> a set of <u>parallel lines</u>.</td> </tr> </table>	Parallel Lines	Straight lines which go in the same direction and <u>never meet</u> .	Transversal	A <u>straight line</u> which passes <u>through</u> a set of <u>parallel lines</u> .
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Transversal	A <u>straight line</u> which passes <u>through</u> a set of <u>parallel lines</u> .				

### Angles on parallel lines

transversal

Angles are inside the parallel lines but either side of the transversal

Alternate angles are equal (Z shape)

One angle is against the top parallel line and the other against the bottom parallel line for all 3 rules

Angles are the same side of the transversal. One inside the parallel lines, one outside.

Corresponding angles are equal (F shape)

Angles are both inside the parallel lines and on the same side of the transversal.

Allied angles sum to  $180^\circ$  (C shape)

These are also called co-interior angles

### Problem solving with angles

We call this angle  $\hat{ADC}$  as it is the angle at D, when D is connected to A and C.

Angle  $\hat{ADC}$  and angle  $\hat{DAB}$  are allied so add to  $180^\circ$

So  $72 + a + a = 180^\circ$

$2a = 108^\circ$

$a = 54^\circ$

The same applies to angles  $\hat{DCB}$  and  $\hat{ABC}$

So  $135 + b + b = 180^\circ$

$2b = 45^\circ$

$b = 22.5^\circ$

Note: As both angles are called b, they must be the same size. Similarly for the angles called a.

### Angles in trapezia and parallelograms

As a trapezium and a parallelogram have a pair of parallel sides, the angles at each end form a pair of allied angles which sum to  $180^\circ$

Trapezium - 2 pairs of allied angles

Parallelogram - 4 pairs of allied angles