

## Essential knowledge

Identify angles in basic polygons  
 Identify angles in parallel lines  
 Identify the order of rotational symmetry  
 Rotate shapes around a point both in and out of the shape  
 Translate by a given vector

## Key Vocabulary

**Parallel:** two straight lines that never meet with the same gradient.  
**Perpendicular:** two straight lines that meet at  $90^\circ$   
**Transversal:** a line that crosses at least two other lines.  
**Sum:** the result of adding two or more numbers.  
**Rotate:** a rotation is a circular movement.  
**Symmetry:** when two or more parts are identical after a transformation  
**Horizontal:** from side to side  
**Vertical:** from up to down

## Prior learning links

Year 7- Lines and angles

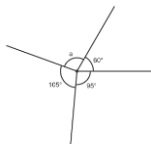
Year 8- Angles in parallel lines and polygons

## Basic angle facts

Angles on a straight line sum to 180 degrees



Angles around a point sum to 360 degrees

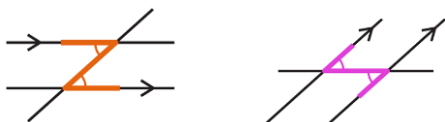


Vertically opposite angles are equal



## Angles in parallel lines

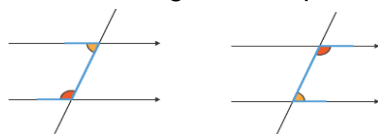
Alternate angles are equal



Corresponding angles are equal

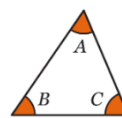


Co-interior angles add up to 180 degrees



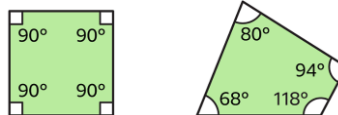
## Angles in polygons

Angles in a triangle sum to 180 degrees



$$A + B + C = 180^\circ$$

Angles in quadrilaterals sum to 360 degrees



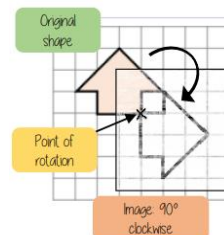
## Rotational symmetry



1. Trace your shape (mark the centre point)
2. Rotate your tracing paper on top of the original through  $360^\circ$
3. Count the times it fits back into itself

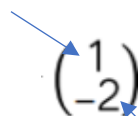
## Rotations

1. Trace the original shape (mark the point of rotation)
2. Keep the point in the same place and turn the tracing paper
3. Draw the new shape

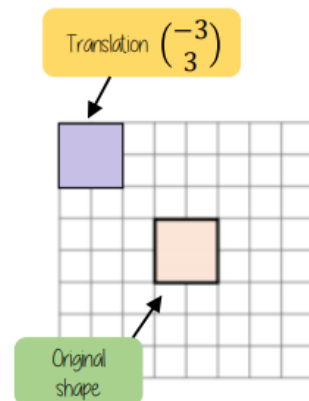


## Translations and vectors

How far left or right to move  
 Negative value (left)  
 Positive value (right)

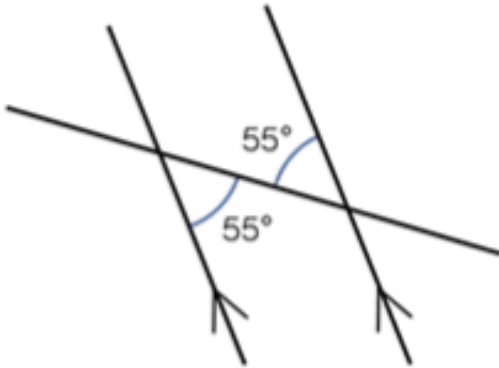


How far up or down to move  
 Negative value (down)  
 Positive value (up)



## Prior learning links

Work out all of the missing angles

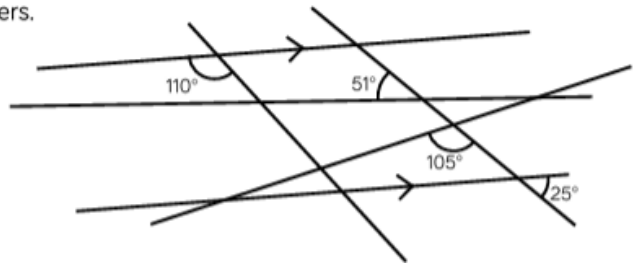


## Key Vocabulary

Parallel:  
Perpendicular:  
Transversal:  
Sum:  
Rotate:  
Symmetry:  
Horizontal:  
Vertical:

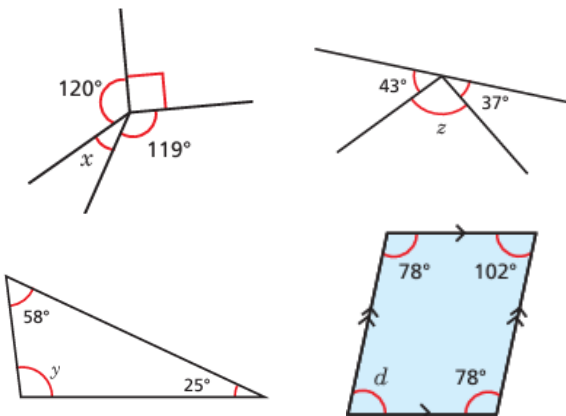
## Angles in parallel lines

How many angles can you work out? Give a reason for each of your answers.



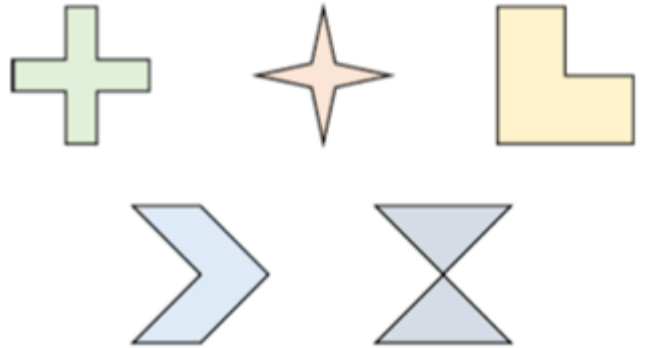
## Angle facts

Find the missing angles



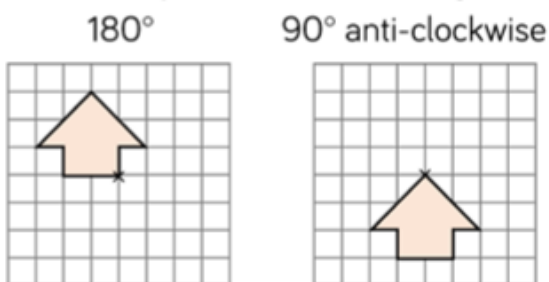
## Rotational symmetry

Identify the order of rotational symmetry for each shape



## Rotations

Rotate each of these shapes around the point marked



## Translations

Translate each shape by the given vector

