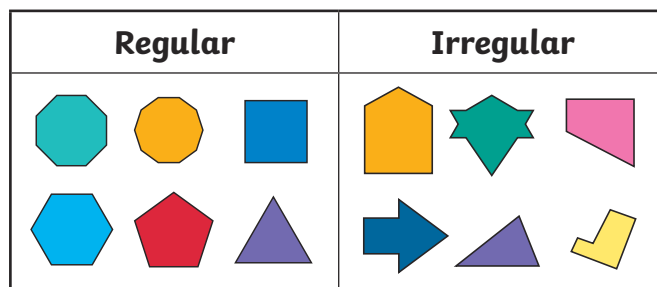


# Properties of Shapes

## Key Vocabulary

angle  
 right angle  
 acute  
 obtuse  
 reflex  
 protractor  
 horizontal  
 vertical  
 parallel  
 perpendicular  
 polygon  
 regular  
 irregular  
 two-dimensional  
 three-dimensional  
 flat face  
 curved surface  
 edge  
 vertex  
 apex

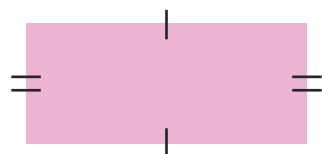
## Regular and Irregular Polygons



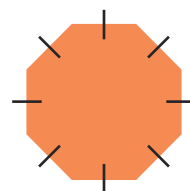
A polygon is any two-dimensional shape with straight lines.

In a regular polygon, all the sides and angles are equal.

Equal sides can be indicated by lines called hatch marks.



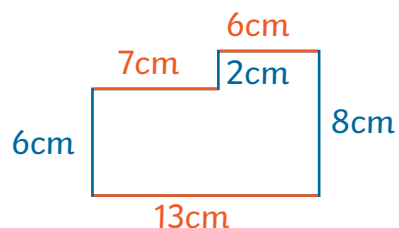
two sets of equal sides



all sides are equal

In an irregular polygon, the sides and angles are not equal.

## Using Properties of Rectangles



$$6\text{cm} + 2\text{cm} = 8\text{cm}$$

$$7\text{cm} + 6\text{cm} = 13\text{cm}$$

# Knowledge Organiser

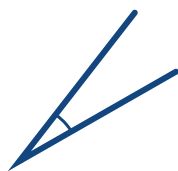
## Properties of 3D Shapes

Name	Surfaces		Edges	Vertices	Picture
	Flat	Curved			
cube	6	0	12	8	
cuboid	6	0	12	8	
square-based pyramid	5	0	8	5	
tetrahedron	4	0	6	4	
triangular prism	5	0	9	6	
pentagonal prism	7	0	15	10	
hexagonal prism	8	0	18	12	
octagonal prism	10	0	24	16	
octahedron	8	0	12	6	

## Identifying Angles

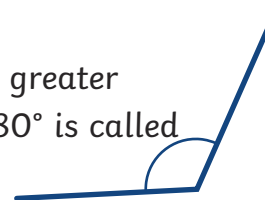
### Acute Angles

Any angle that measures less than  $90^\circ$  is called an **acute** angle.



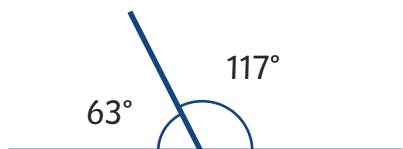
### Obtuse Angles

Any angle that measures greater than  $90^\circ$  and less than  $180^\circ$  is called an **obtuse** angle.

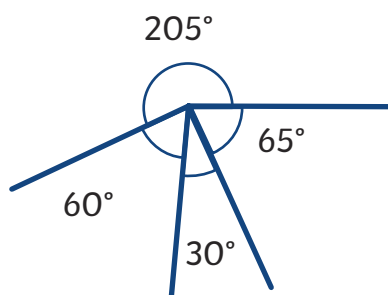


### Reflex Angles

Any angle that measures greater than  $180^\circ$  is called a **reflex** angle.



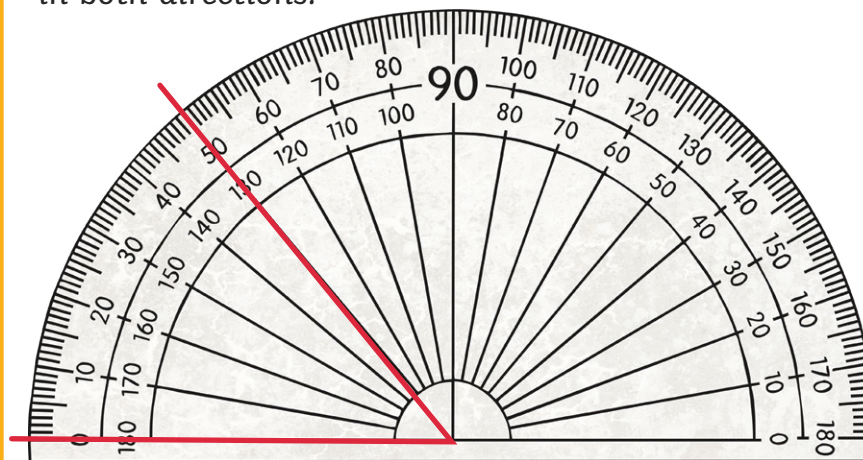
Angles on a straight line always total  $180^\circ$ .



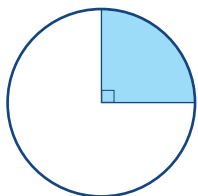
Angles around a point always total  $360^\circ$ .

## Measuring and Drawing Angles

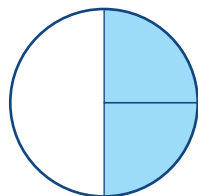
To measure angles, we use a protractor. Look carefully at how the numbers on the scale count from  $0^\circ$  to  $180^\circ$  in both directions.



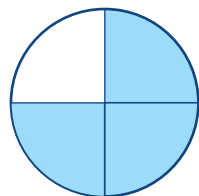
Multiples of  $90^\circ$  can be used as descriptions of a turn.



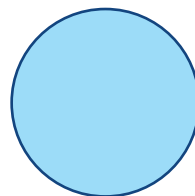
$\frac{1}{4}$  turn =  $90^\circ$



$\frac{1}{2}$  turn =  $180^\circ$



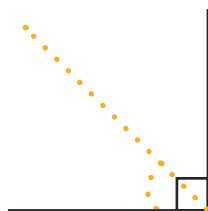
$\frac{3}{4}$  turn =  $270^\circ$



1 turn =  $360^\circ$

## Estimate Angles

$45^\circ$  is half of a  $90^\circ$  right angle.



$135^\circ$  is halfway between a  $90^\circ$  right angle and a  $180^\circ$  straight line.

