### Week 2

# Lesson 2

L.O: I am learning to calculate angles in a triangle.



**Starter** 

- 1. How many triangles can you see?
- 2. Ask a family memberhow many triangles they can see?
- 3. Name the type of triangles you can.





#### How many triangles can you see?

#### **16 triangles**

#### What type of triangles can you see?

**Right angles triangles, scalene, equilateral and isosceles triangles.** 





# **Revision: Understanding a triangles**

# The three interior angles for any triangle ALWAYS add up to 180°.





A **right-angled triangle** (also called a **right triangle**) is a triangle with a **right angle** (90°) in it.

The little square in the corner tells us it is a right angled triangle (I also put 90°, but you don't need to!)



# **Understanding Interior Angles**

In a triangle there is a relationship between the interior angles of the triangle. Interior angles are the angles inside the triangle.



Notice that triangles a,b,c and d are all different, they have different angle measures and different side lengths.

If you add up the measures of the three angles, what do you notice?

What do all the angles in each shape add up to? PROVE your answer using formal addition written method.

## **Understanding Interior Angles**



- Shape a(Equilateral triangle): 60° + 60° + 60° = 180°
- Shape b(Right angled triangle): 90° + 45° + 45° = 180°
- <u>Shape c (isosceles triangle)</u>: 30° + 80° + 70° = 180°
- Shape d (Scalene triangle): 120° + 35° + 25° = 180°

#### All the interior angles in each shape have a sum of 180°

# MODELLED EXAMPLE 1: Work out the size of the unknown angle.



**Answer and Explanation** 

**X = 41°** because you need to add all the interior angles first (step 1) and then <u>subtract</u> the total of the two angles (139°) from the from 180°(step 2)

# MODELLED EXAMPLE 2: Work out the size of the unknown angle.



Step 1- AdditionStep 2- Subtraction $58^{\circ} + 25^{\circ} = 83^{\circ} \longrightarrow 180^{\circ} - 83^{\circ} = 97^{\circ}$ 

#### **Answer and Explanation**

**Y = 97°** because you need to add all the interior angles first (step 1) and then <u>subtract</u> the total of the two angles (83°) from the from 180°(step 2).

### **UNDERSTANDING RIGHT ANGLES**

### A right angle measures exactly 90° and usually has a square



# **MODELLED EXAMPLE:** Work out the size of the unknown angle.



Step 1- AdditionStep 2- Subtraction $35^\circ + 90^\circ = 125^\circ$  $\rightarrow$  $180^\circ - 125^\circ = 55^\circ$ 

#### **Answer and Explanation**

There are three angles in this shape. Angle Z = 55° and the square corner = 90°. You need to add all the interior angles first (step 1) and then <u>subtract</u> the total of the two angles (125°) from the from 180°(step 2).



# **Thinking time:**



What type of triangle can you see?

What is the value of the two unknown angles?

# **Thinking Time Answer:**



# A helpful revision video

### Angles in a Triangle Video



https://corbettmaths.com/2012/08/10/angles-in-a-triangle/



- 1. The interior angles of a triangle add up to how many degrees?
- 2. How do we know if a triangle has a right angle?
- 3. How do you find a missing angle?
- 4. What is the name of the triangle that has three equal sides and three equal angles?

<u>Answers</u>

- 1. 180°
- 2. It will have a square corner
- 3. Add the known angles together and subtract from  $180^\circ$
- 4. Equilateral triangle

Once you have finished turn this assignment in on Google Classroom by 4pm on Friday.

## Task

All	All of you <b>must</b> complete the <b>fluency</b> section.
Most	Most of you <b>will</b> compete the <b>fluency</b> and <b>reasoning</b> sections.
Some	Some of you <b>will</b> complete the <b>fluency, reasoning,</b> and <b>problem-solving</b> sections.

#### Try your best – it is all we can ask for! $\odot$

These videos may help if you are stuck at any point:

- <u>https://vimeo.com/403441277</u>
- <u>https://corbettmaths.com/2012/08/10/an</u> <u>gles-in-a-triangle/</u>



#### Week 2\_Maths\_Lesson 2



#### Reasoning

Key vocabulary: Angles, degrees, isosceles, scalene, equilateral, interior, hash marks and right angle.	Your answer
One corner is torn from this triangle. What corner shows the angle of the missing corner?	
AT AT	
50. Motch each hiorigie to the best description.	
1. The missing angle in this hiangle is 80'.	
2. The missing angle in this hiangle is a multiple of 6.	
3. This bicangle has three 60° angles.	