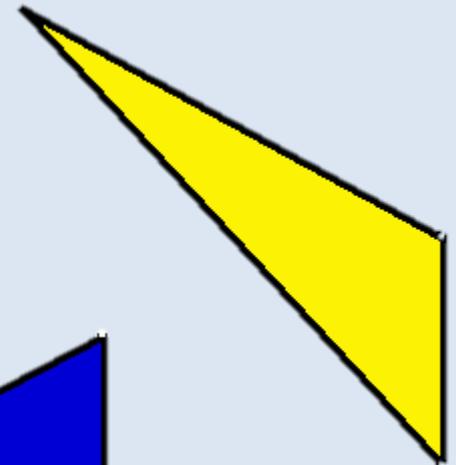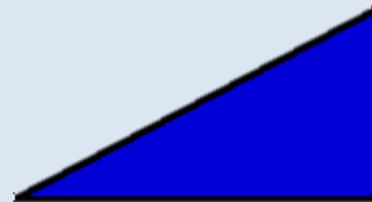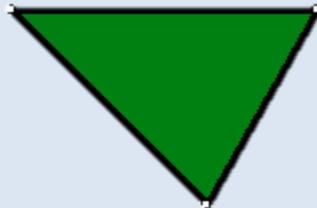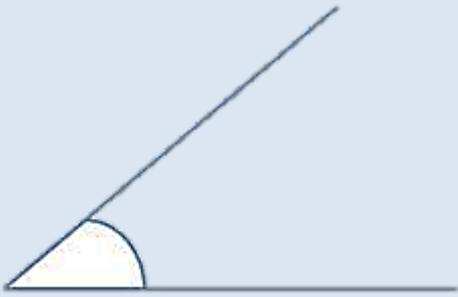# Antelope Class
Maths
Week 3 learning- 4.5.20

Properties of shapes.

Thank you for all of the hard work you have put in over the last week and thank you to your parents / carers for supporting you. It has been a pleasure to see more emails with pictures of your work come through to the class email. Keep sending them to antelopes@bratton.wilts.sch.uk, every few days or at the end of the week.

Thank you, Miss McMillan and Mrs Smith.

This week we are going to begin looking at properties of shape. There will be 4 days worth of learning this week as Friday is a bank holiday but an additional activity will be included if you would like to complete it. Each lesson will last approximately 30 minutes.

<u>This week you will:</u>

- Identify obtuse, acute and right angles.
- Compare and order different angles.
- Classify types of triangles based on their properties
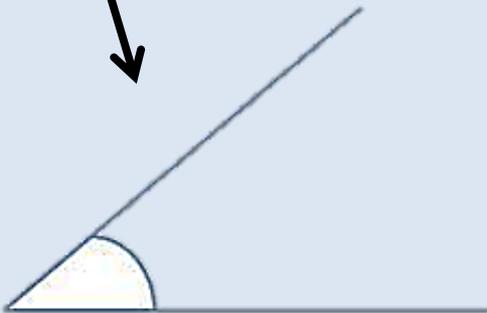
Lesson 1

To recognise obtuse, acute and right angles.

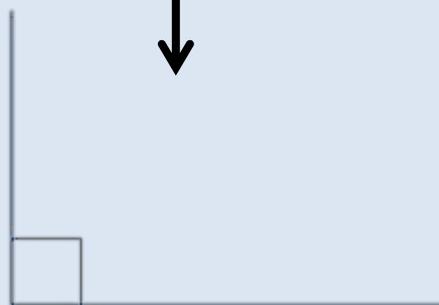Watch the video below to define the different types of angles.
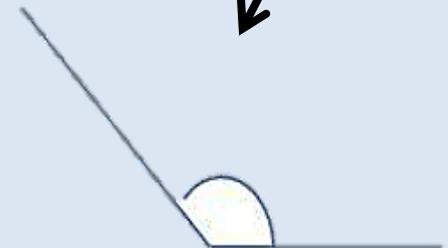
Watch to 2 minutes.

Acute angles are more than 0 degrees and less than 90 degrees.

A right angle is 90 degrees

Obtuse angles are more than 90 degrees and less than 180 degrees

Complete the sentences:

greater   less   90

A right angle is _____ degrees.

Acute angles are _____ than a right angle.

Obtuse angles are _____ than a right angle.

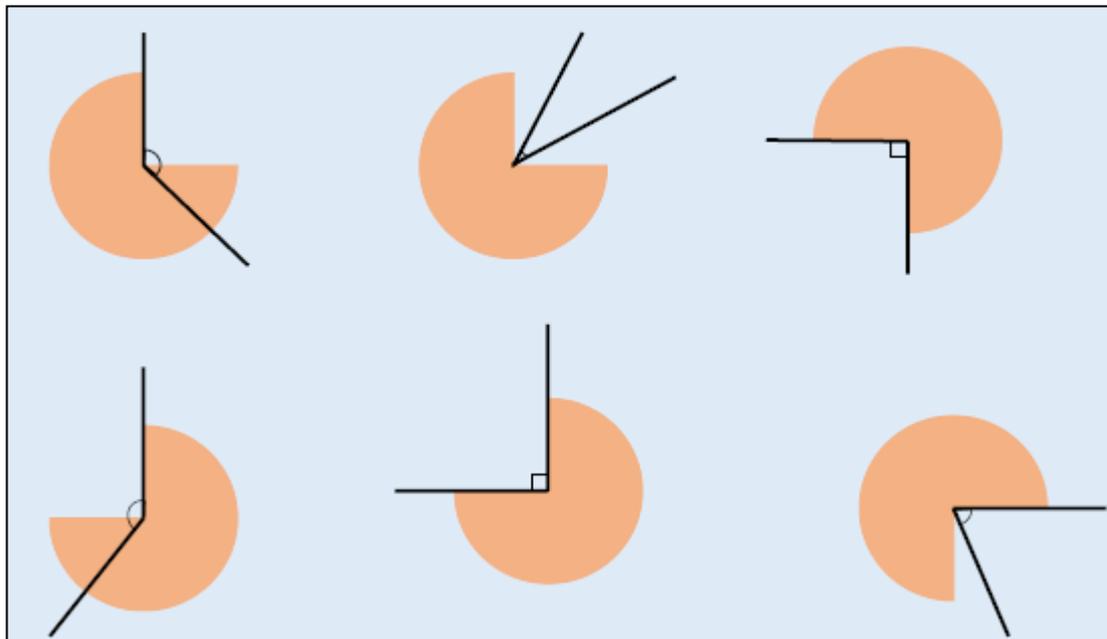**Activity 1: Sort the angles into acute, obtuse and right angles.**

Activity 1 continued: Sort the angles into acute, obtuse and right angles.

| 86° | 95° | 56° | 100° |

Activity 2: label the angles.
O for obtuse, A for acute and R for right angle.
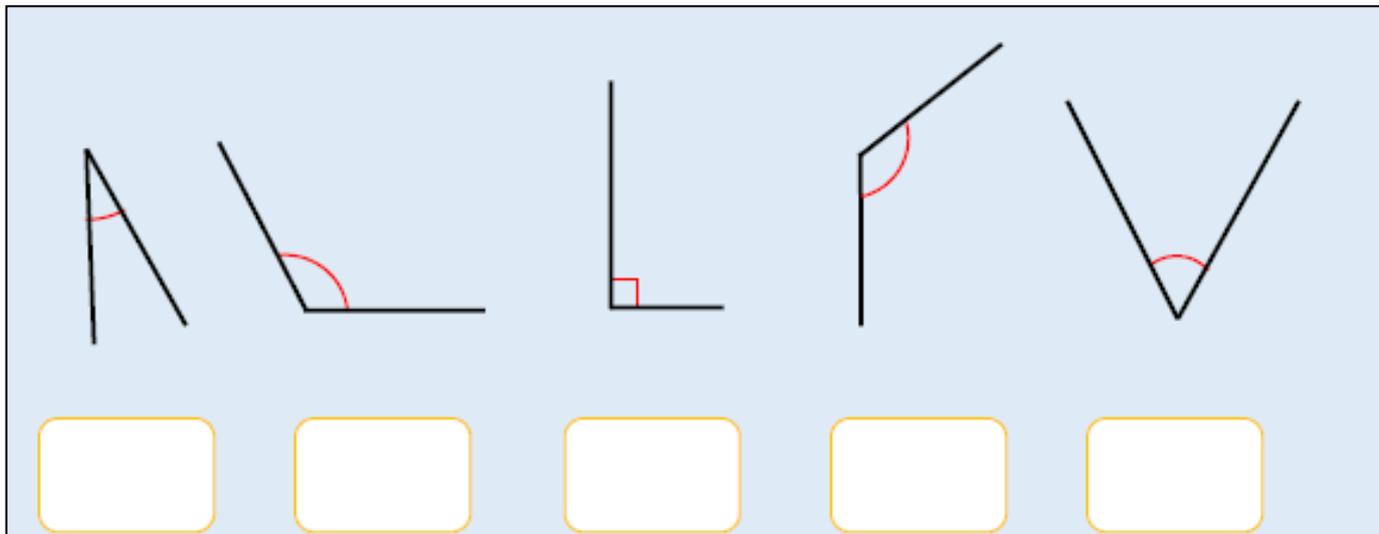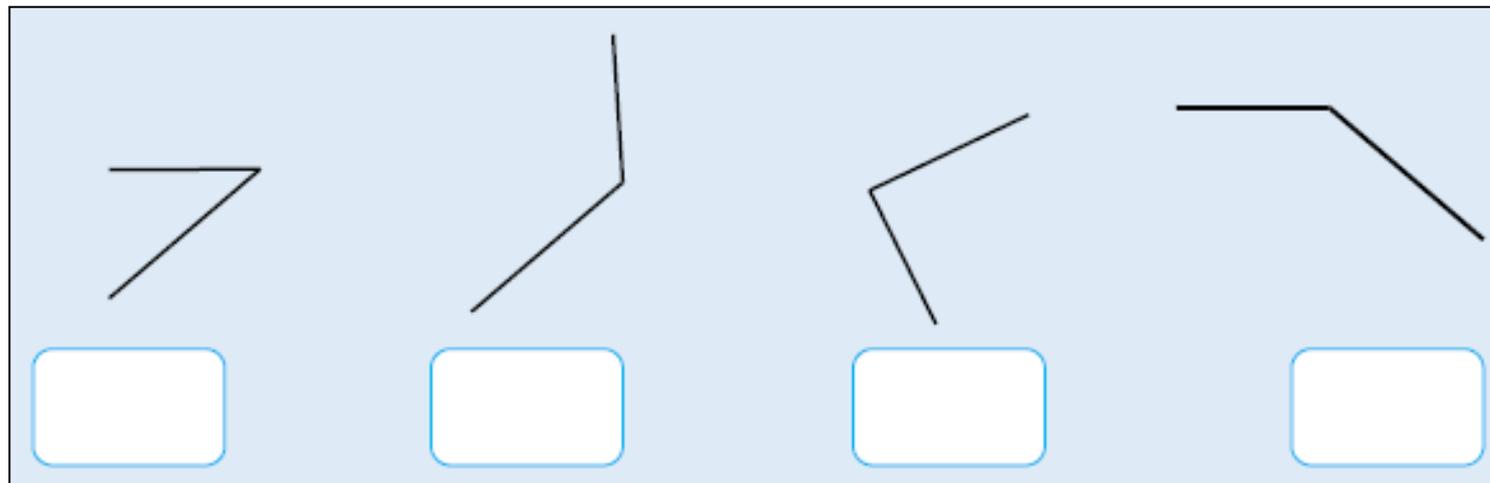
Activity 3: Reasoning questions

1.
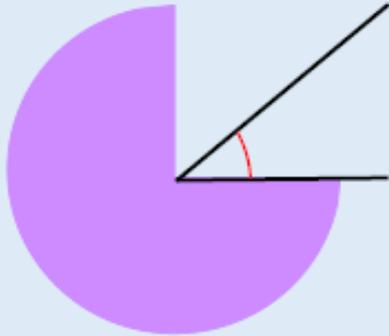
I know the angle is not obtuse. — Zach

I know the angle is acute. — Tia

I think the angle is roughly 45°. — Esin

Who is correct? Explain your reasons.

2.

Find the sum of the largest acute angle and the smallest obtuse angle in this list:

10°	97°	88°
178°	90°	8°

Activity 1 answers:

right angle

acute angles

obtuse angles

97°

87°

right angles

obtuse angles

acute angles

right angle

acute angles   obtuse angles

86°   56°   95°   100°
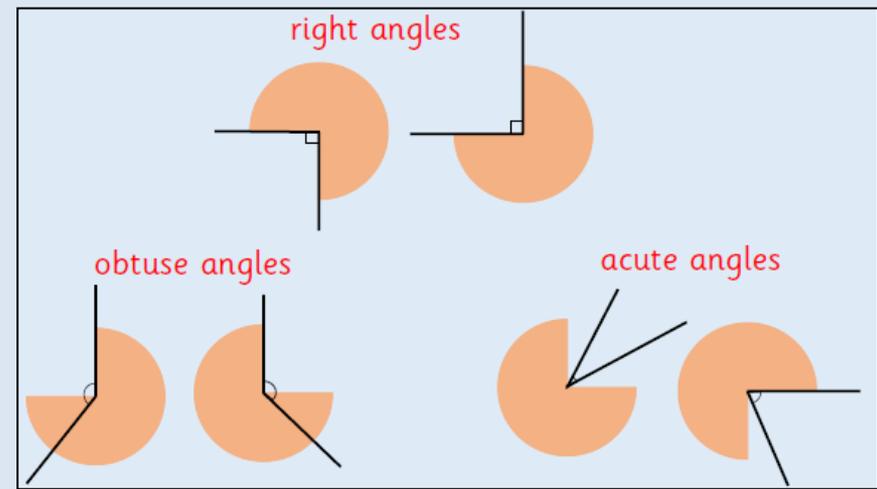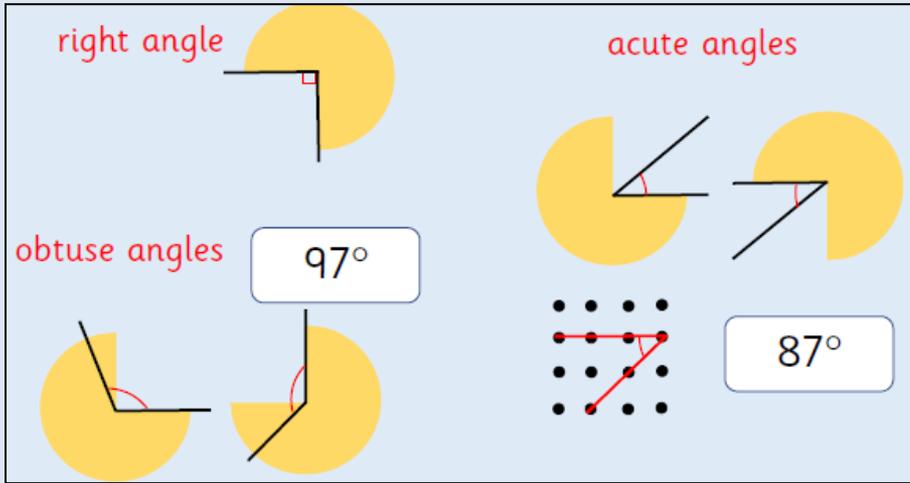
Activity 2 answers:

A   O   R   O   A

A   O   R   O
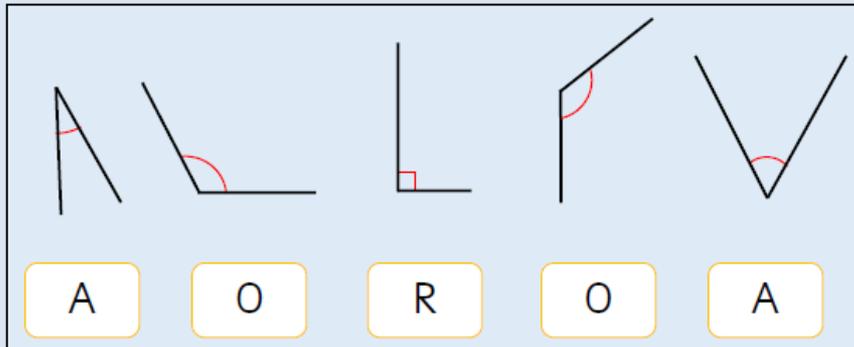
Activity 3 answers:

1. All are correct. Esin has come to her answer as the angle is about half a right angle. Half of 90 degrees is 45 degrees.

2. 88° + 97° = 185°

Activity 4:

Following on from Challenge 3- Add two 2-digit numbers quickly using the following partitioning method:

Complete either the 1, 2 or 3 set of questions to practise this:

1.
a) 20 + 45 =
b) 60 + 12 =
c) 40 + 24 =
d) 10 + 36 =
e) 12 + 16 =
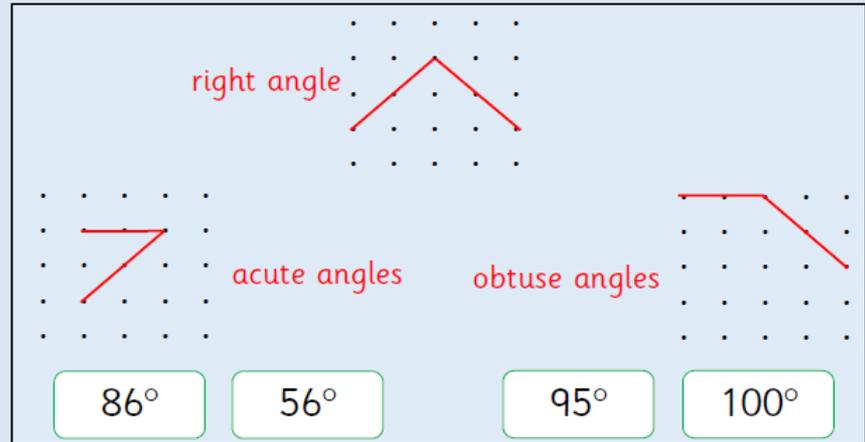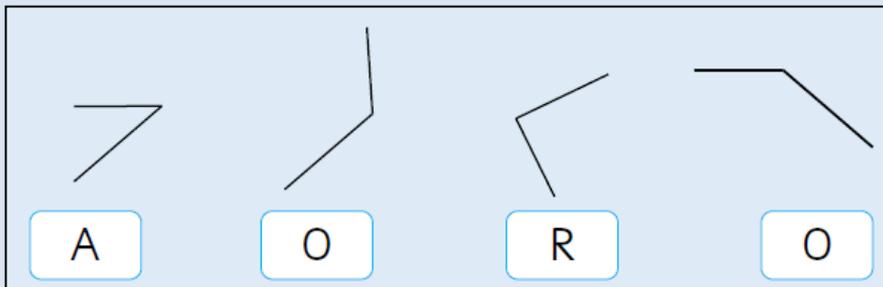f) 54 + 23 =

2.
a) 12 + 32 =
b) 52 + 11 =
c) 21 + 48 =
d) 84 + 15 =
e) 35 + 79 =
f) 29 + 92 =

3.
a) 31 + 73 =
b) 68 + 34 =
c) 62 + 51 =
d) 58 + 76 =
e) 88 + 47 =
f) 99 + 55 =

Lesson 2

To compare and order angles.

Order the angles from largest to smallest.

a

b

c

d

e

acute

acute

obtuse
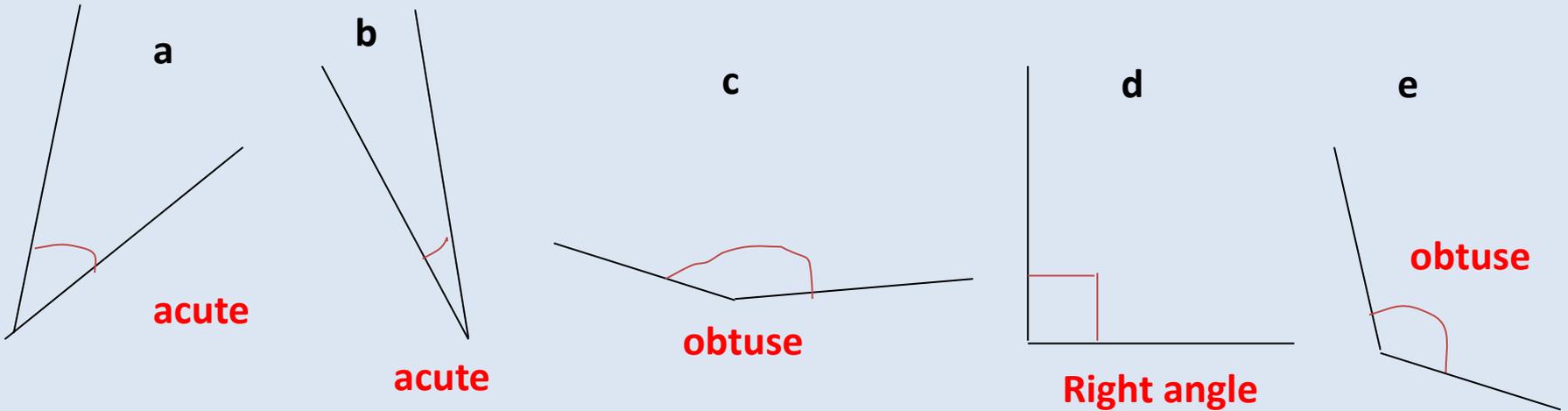
Right angle

obtuse

1. Label the angles: acute, obtuse and right-angle.
2. Then, decide which angles are the largest
   c is bigger angle than e – they are both obtuse angles
   d is a right-angle
   a is a bigger acute angle than b- b is the smallest angle.
3. Finally, order the angles according to your findings.

Order of angles from largest to smallest:
c, e, d, a, b

Activity 1- Order the angles from largest to smallest

1.

| a | b | c | d | e |

2.

| a | b | c | d |
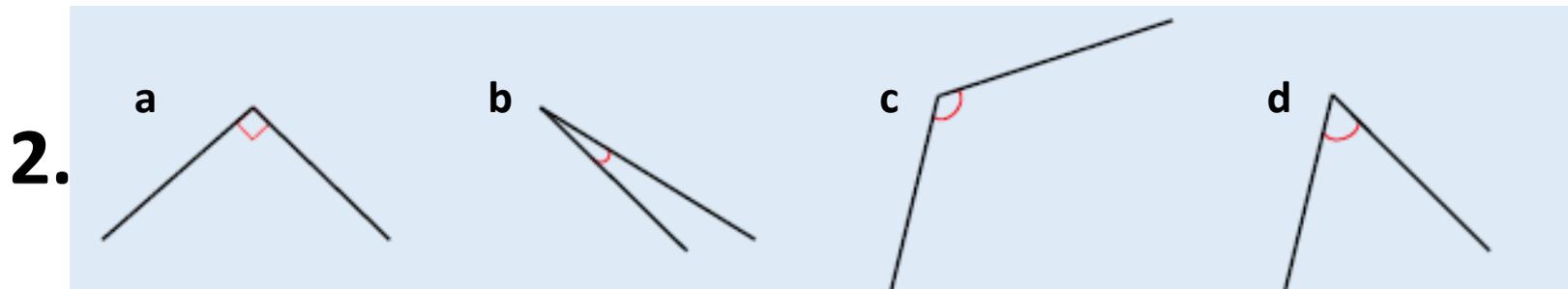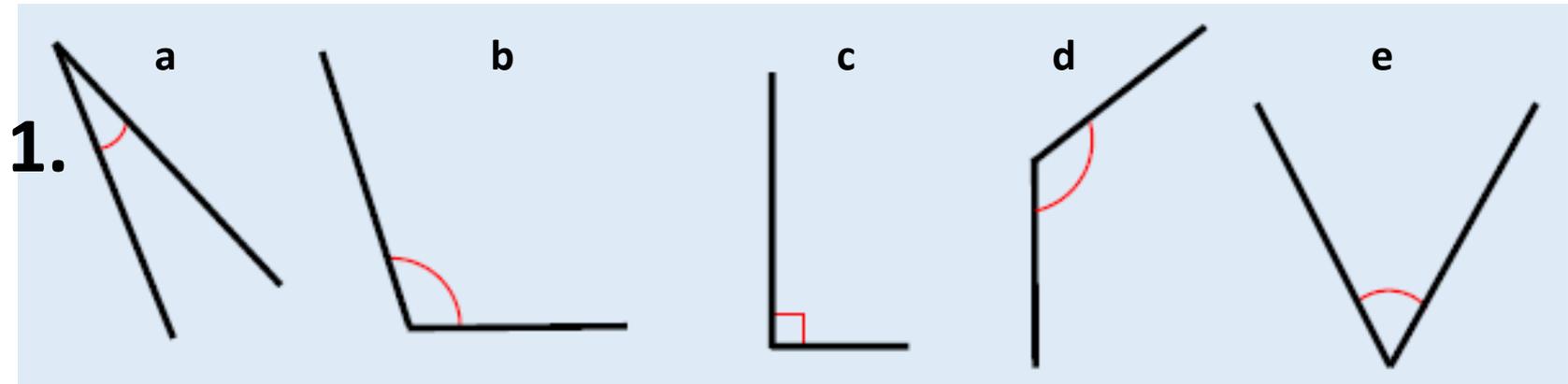
Challenge:

Can you draw a larger obtuse angle?

Can you draw a smaller acute angle?

Activity 2: Please complete worksheet 1, 2 or 3.

Activity 3: If you have time, please have a go at the following reasoning questions:

1.
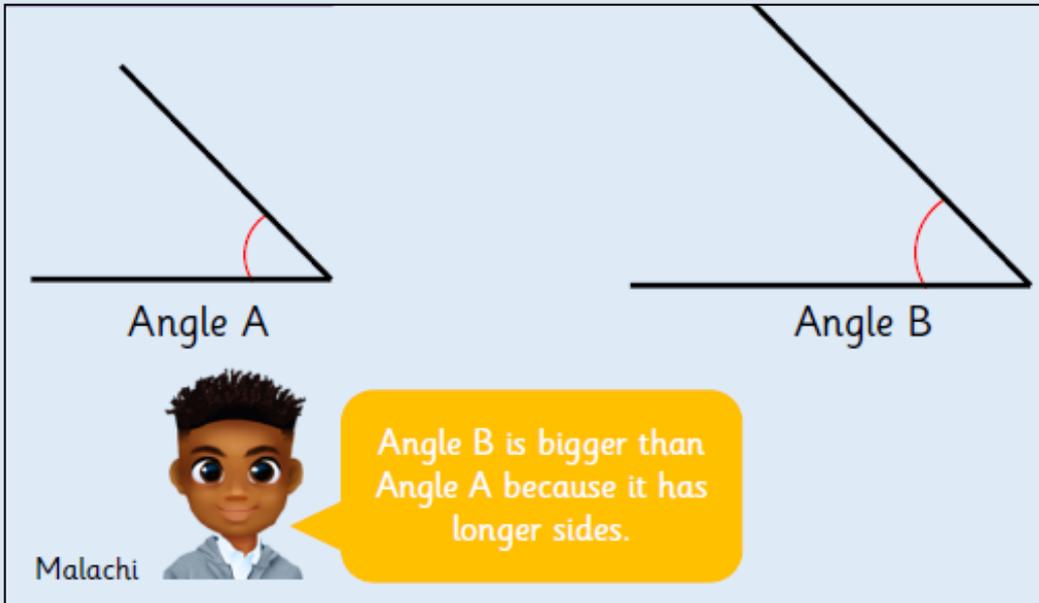
Angle A

Angle B

Angle B is bigger than Angle A because it has longer sides.

Malachi

Do you agree with Malachi? Explain your thinking.

2. Here are five angles. There are two pairs of identically sized angles and one odd one out.

a

b

c

d

e

Which angle is the odd one out? Explain your reason.

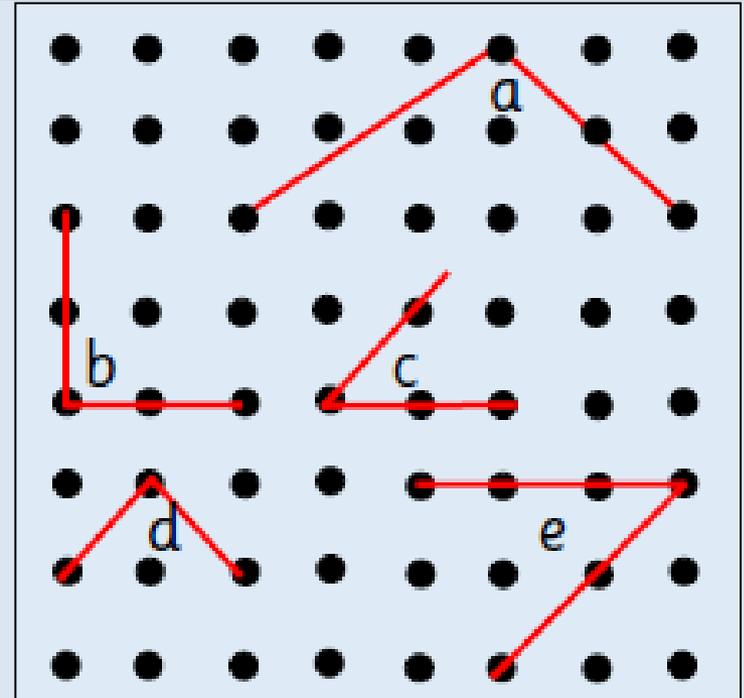# Activity 3 reasoning answers

1. Angle a and Angle b are the same size. Malachi has mixed up the lengths of the lines with the size of the angles.

2. Angle a is the odd one out.
   Angles b and d are both right angles.
   Angles c and e are both acute angles, half of a right angle or 45 degrees.
   Angle a is an obtuse angle.

Comparing Angles Game

Instructions

1. Each draw an angle- acute, right-angle or obtuse.

2. Roll the dice and compare the angles.

   1-3 and smaller angle receives a point. 4-6 and the larger angle receives a point.

Play for 5 minutes, remember to tally the results for won wins!

Tally:

1	I	6	ЖТ I
2	II	7	ЖТ II
3	III	8	ЖТ III
4	IIII	9	ЖТ IIII
5	ЖТ	10	ЖТ ЖТ
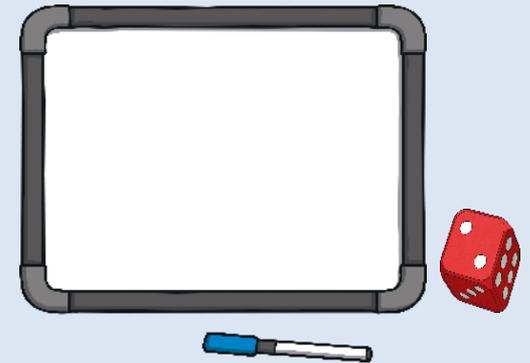
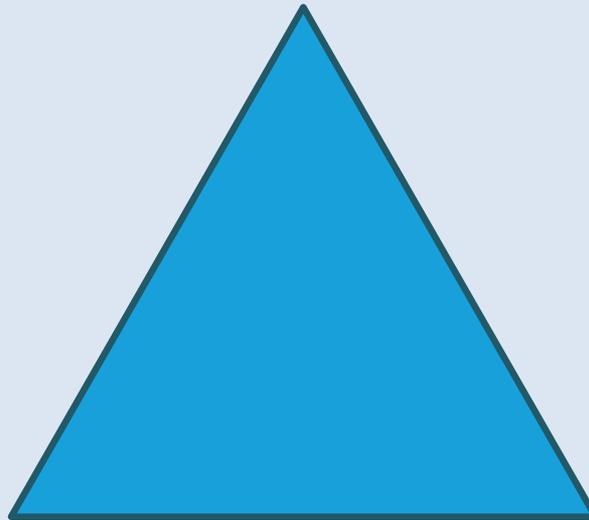Dice online:
https://freeonlinedice.com/

Lesson 3

To identify the different types of triangles.

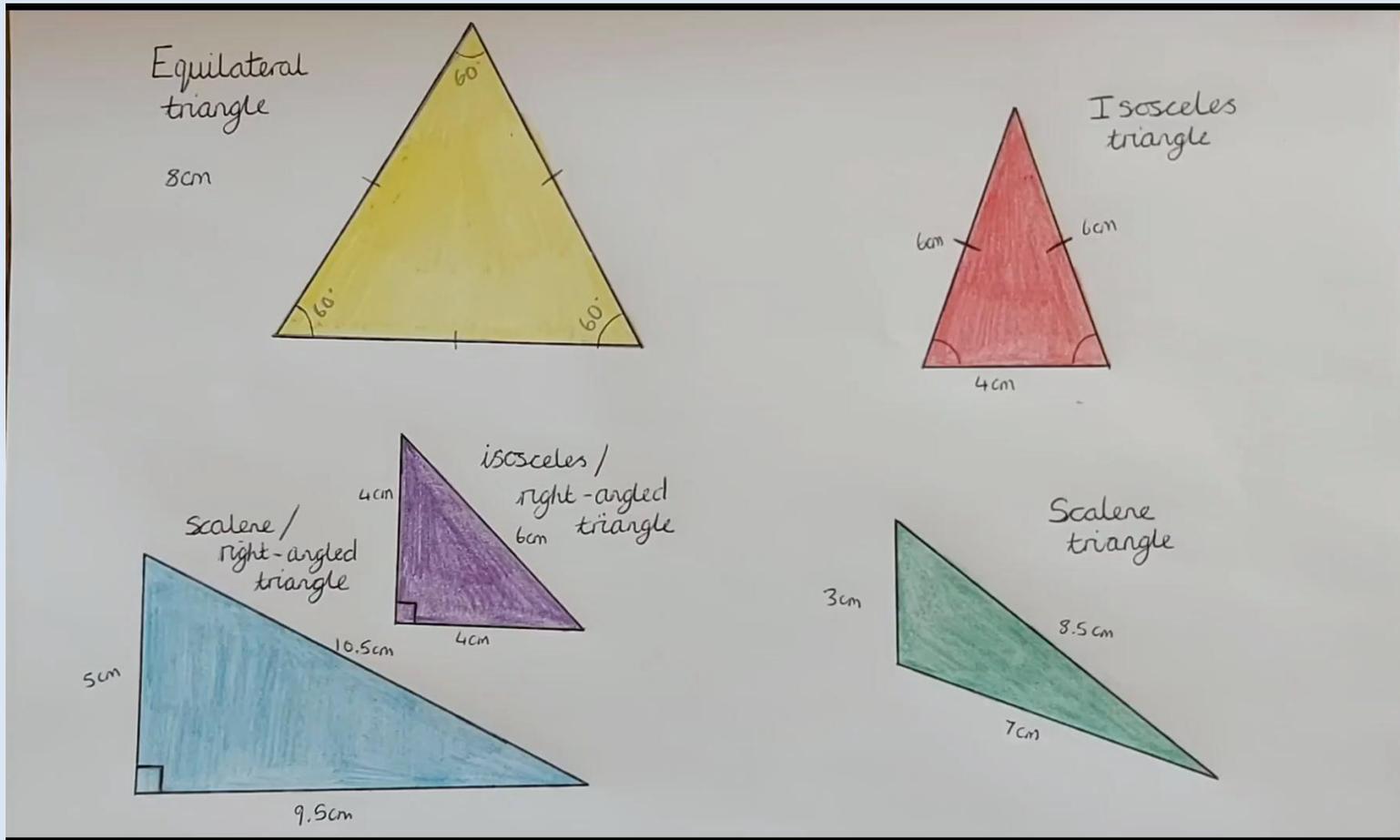What Is a Triangle?

a 3-sided shape

all its sides are straight

a 2D shape

has 3 **interior angles (angles inside the shape)** that add up to 180°

Please follow the link to access the video explaining the 4 different types of triangles.
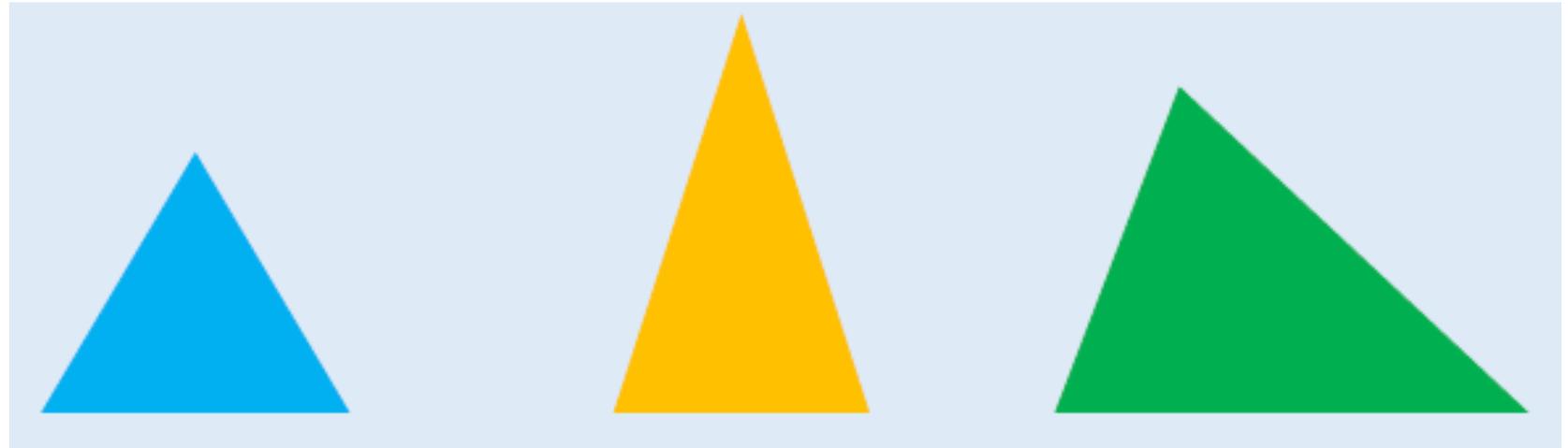
https://www.youtube.com/watch?v=9VSd2llfkns

Definitions

Look at the triangles and write down:

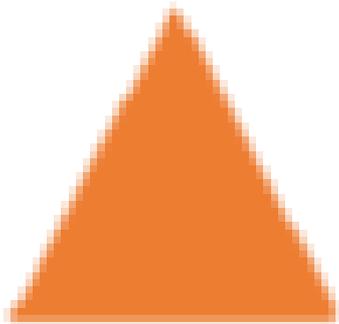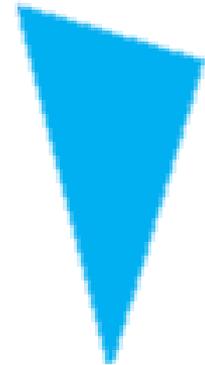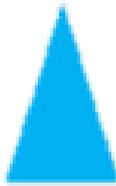What types of triangle are they?

How many equal sides?

How many equal angles?

Activity 1:

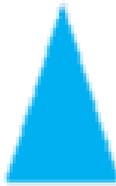Label each of the triangles: isosceles, scalene or equilateral.
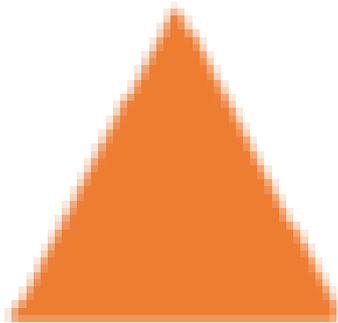
Activity 1 **answers**:

Label each of these triangles: isosceles, scalene or equilateral.
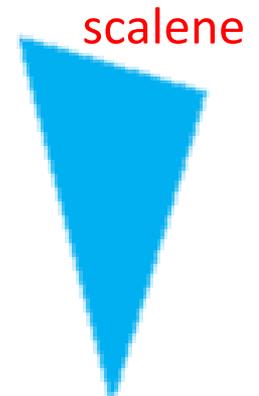
Activity 2:

Using a ruler, draw:

- Two isosceles triangles

- Two scalene triangles

Use your knowledge of the sides to ensure they meet the criteria for each type of triangle.

Activity 3: Complete the 'Triangle Tasters' and the 'Pyramid Puzzles 2' activities on Mathletics.
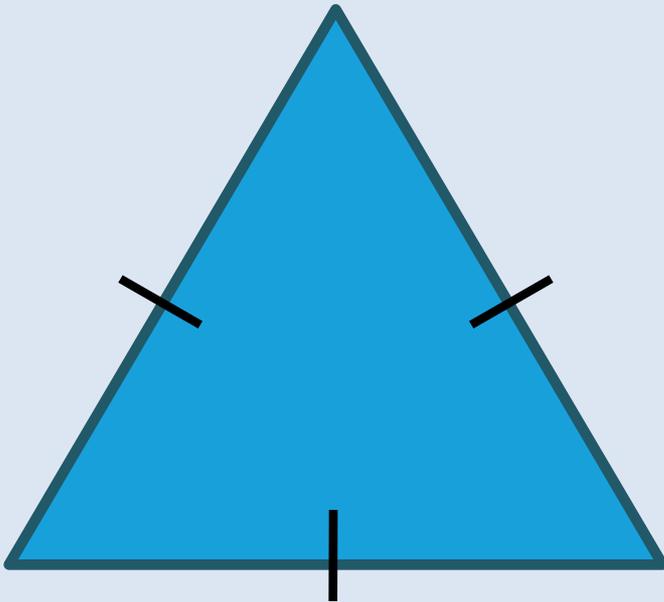
Lesson 4

To identify missing angles in a triangle.

- We are going to find missing angles in a triangle.
- We will look at what type of triangle they are and identify the size of the angles based on the properties.

- First, lets look at the types of triangles again.

Equilateral Triangle

Equilateral means equal.
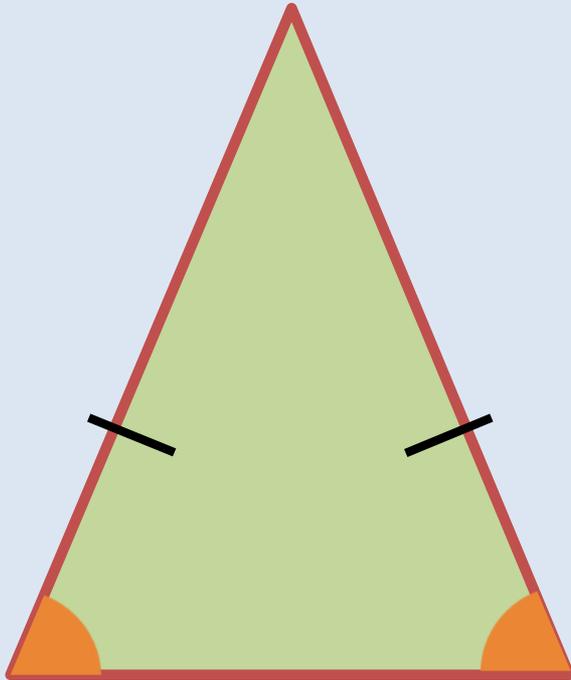Equal sides, equal angles

The lines on the sides of the triangle mean they are equal in length

Has 3 equal sides.

All its interior angles are the same.

If the angles in a triangle add up to 180º, each angle is **60º**
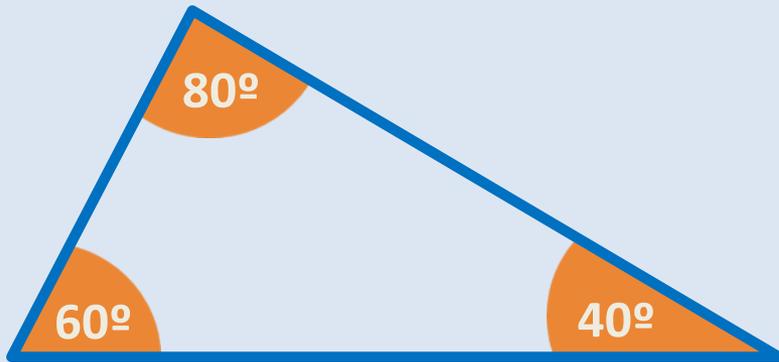
Isosceles Triangle

The lines on the sides of the triangle mean they are equal in length

They have 2 equal sides.
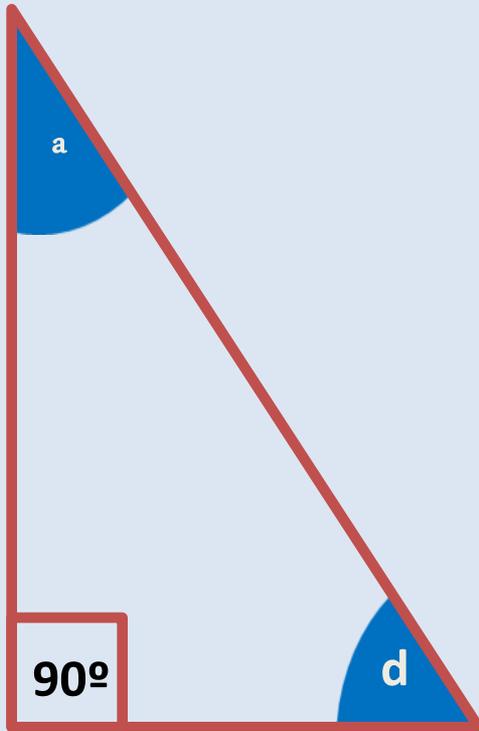
They have 2 interior angles that are the same.

Scalene Triangle

All of its sides are different lengths.

All of its interior angles are different – but they still add up to 180º.
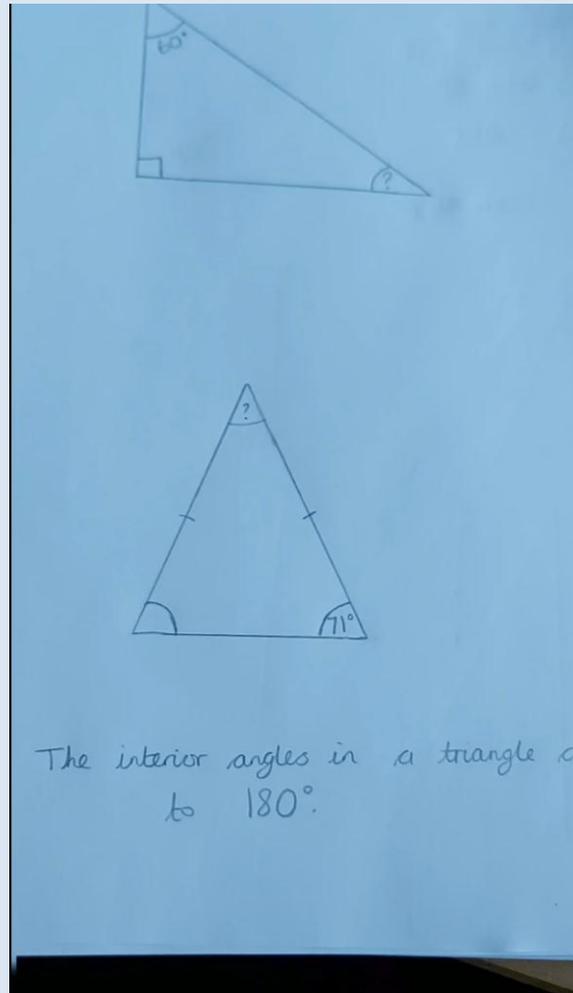
Right-Angled Triangle

a

90º

d

One of the angles is a right angle = 90º.

The other two angles will add up to 90º

Please watch the video to explain how to work out the missing angles in a right-angled triangle and an isosceles triangle.

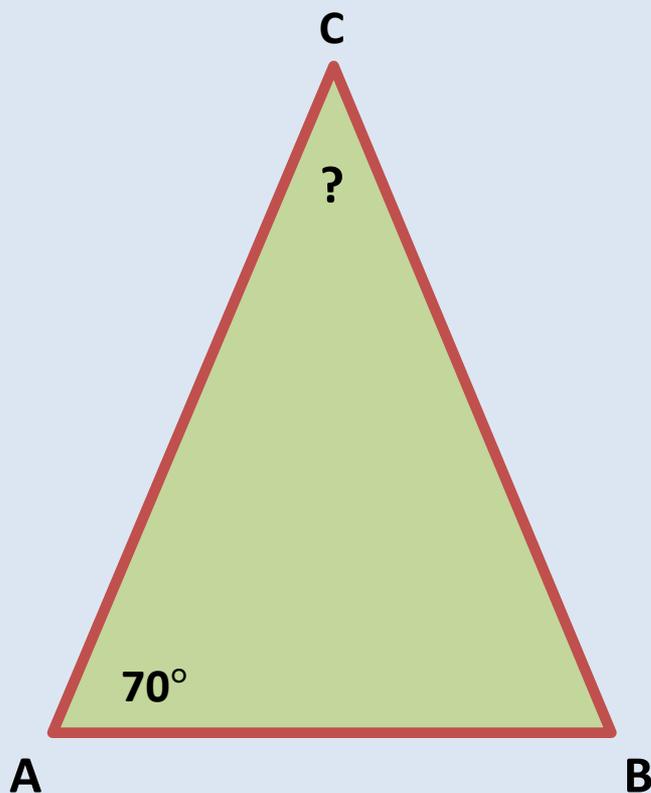https://www.youtube.com/watch?v=iBq5IMqlUe8&feature=youtu.be

A further two examples are shown on the following two slides before some practise questions.

Example: find the Missing Angle

The angles in any triangle add up to 180º.
How could we find angle **C** in this triangle?
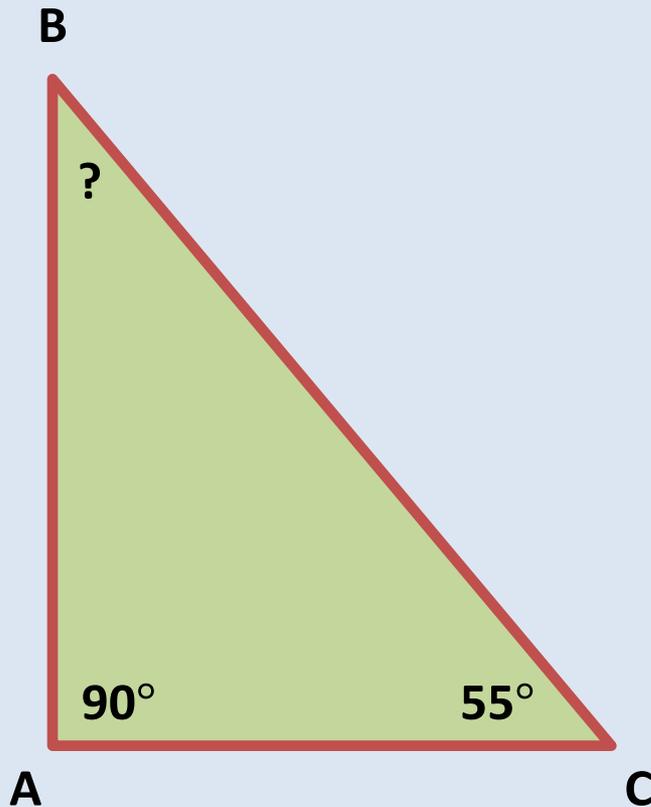
C

?

70°

A

B

What do we know that can help us?

This is an isosceles triangle so angle A and B are the same.
Angle B is also 70º.

Add up the two angles you know:
70º + 70º = 140º

Take this away from 180º to find the missing angle
180º − 140º = **40º**
This is an **acute** angle.

Example: find the Missing Angle

The angles in any triangle add up to 180º.
How could we find angle B in this triangle?

B

?

90°   55°

A   C

What do we know that can help us?

This triangle is a right-angled scalene triangle.
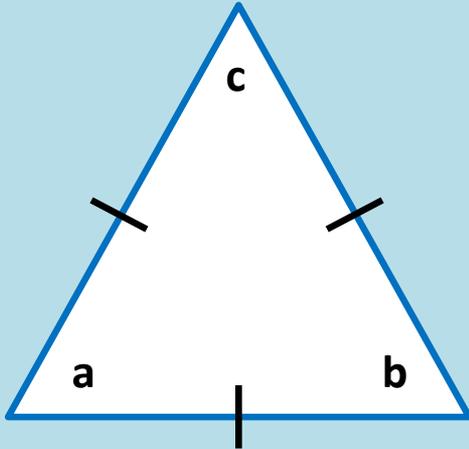
Add together the angles we already know:
90º + 55º = 145º

Take this away from 180º to find the missing angle.
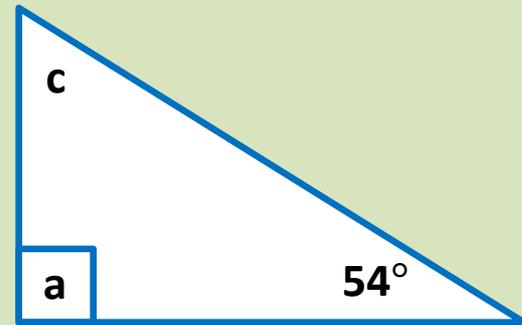180º − 145º = 35º
This is an **acute** angle

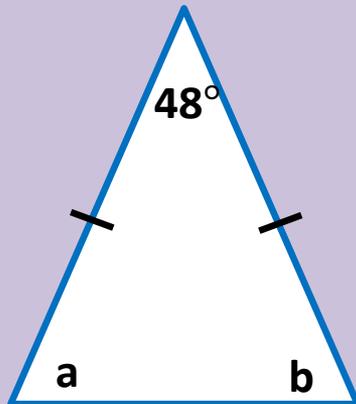# Activity 1 : Calculate the Missing Angles

1. Calculate angles **a**, **b** and **c**.
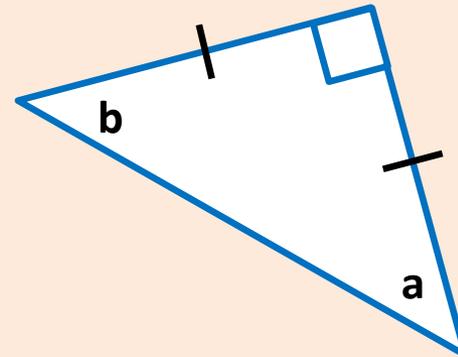What types of angles are they?

2. Calculate angle **c**.
What type of angle is it?

54°

3. Calculate angles **a** and **b.**
What type of angles are they?

48°

4. Calculate angles **a** and **b**.
What type of angles are they?

Answers:

1. This is an equilateral triangle, so all the angles are **60**°. These are **acute** angles.

2. This is a right-angled scalene triangle.
   90° + 54° = 144°
   180° − 144° = **36**°
   It is an **acute** angle.

3. This is an isosceles triangle, so angles a and b are the same.
   180° - 48° = 132°
   132° ÷ 2 = **66**°
   They are **acute** angles.

4. This is a right-angled isosceles triangle.
   180 ° - 90° = 90°
   90° ÷ 2 = **45**°
   They are **acute** angles.

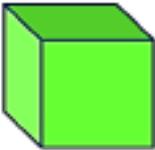**Activity 2:** Please log onto Professor Assessor to complete the angles assessment.
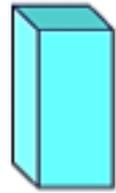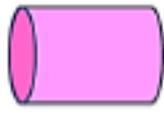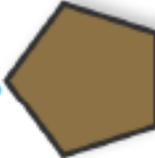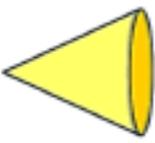
Bank holiday activity (optional)

Complete a shape investigation around your home.

- Look for 2D and 3D shapes.
- Create a tally for how many of each shape you find.
- E.g. cylinder- tin cans, toilet rolls, bottle of shampoo, drinking glass.
- A worksheet is on the following slide if you would like to use it.
- Please use the list of 2D and 3D shapes to guide your investigation.

Shape investigation

Example of objects found:	Tally:	3D Shapes:	Example of objects found:	Tally:	2D Shapes:
		Sphere			Circle
		Cube			Square
		Cuboid			Triangle
		Cylinder			Rectangle
		Cone			Pentagon
		Square-based pyramid			Hexagon
		Triangular prism			Octagon