LBQ Support Pack

Welcome to your maths help pack for the week. In this pack you will find a page or two that will help you with the days task on LBQ.

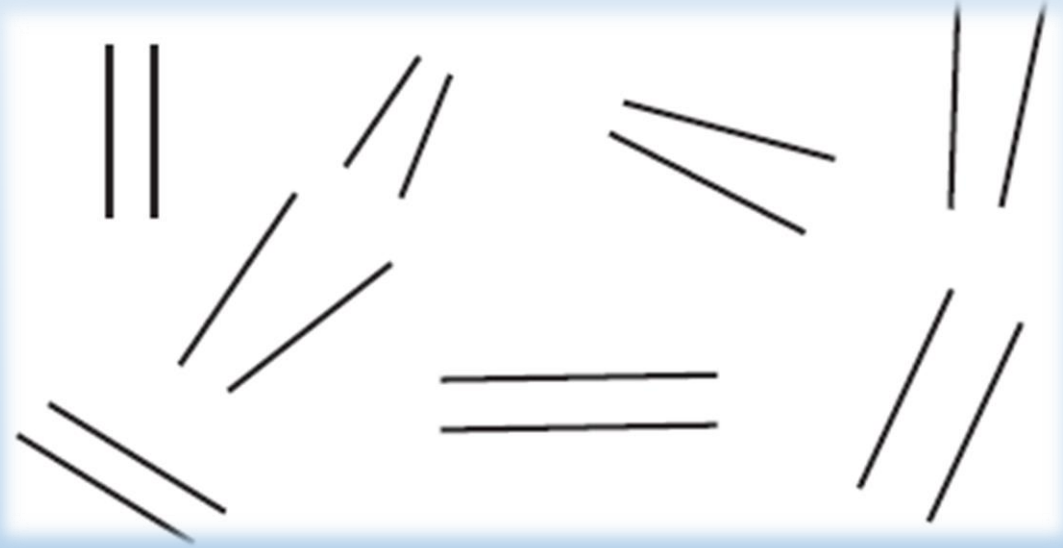
If you are still unsure of something from your LBQ task, just email Mrs Catalano!

13.07.20

Identify Horizontal, Vertical, Parallel and Perpendicular Lines

Today you are going to be considering perpendicular, parallel, vertical and horizontal lines.

You might be sat there thinking "That's an awful lot of lines, Mr. Spencer!" Do not fear, Mr. Spencer has explained them all on the next page.

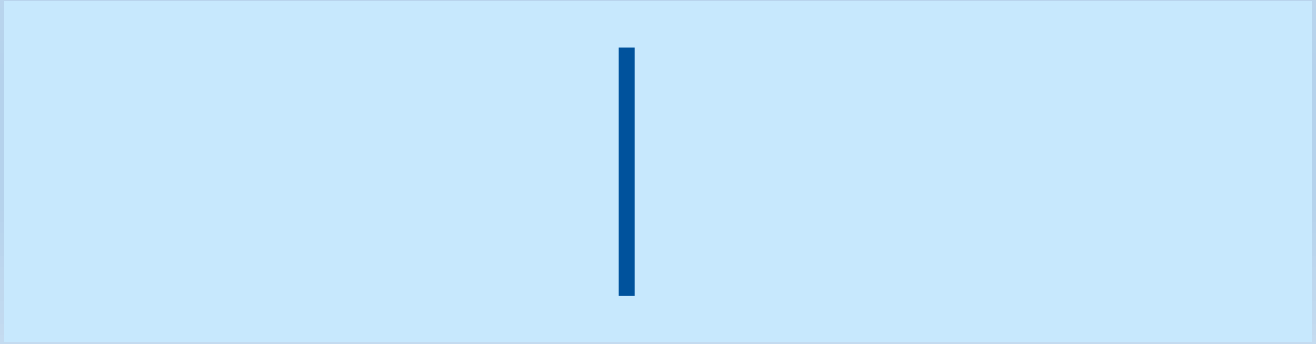


13.07.20

Horizontal and vertical

A **horizontal** line runs across, from left to right (or right to left):

A **vertical** line runs up and down:



13.07.20

Parallel Lines

Lines are parallel if they are always the same distance apart, and will never meet. Just remember:

> Always the same distance apart and never touching.

Think train tracks-- They will never meet!

Even the national rail sign features parallel lines!

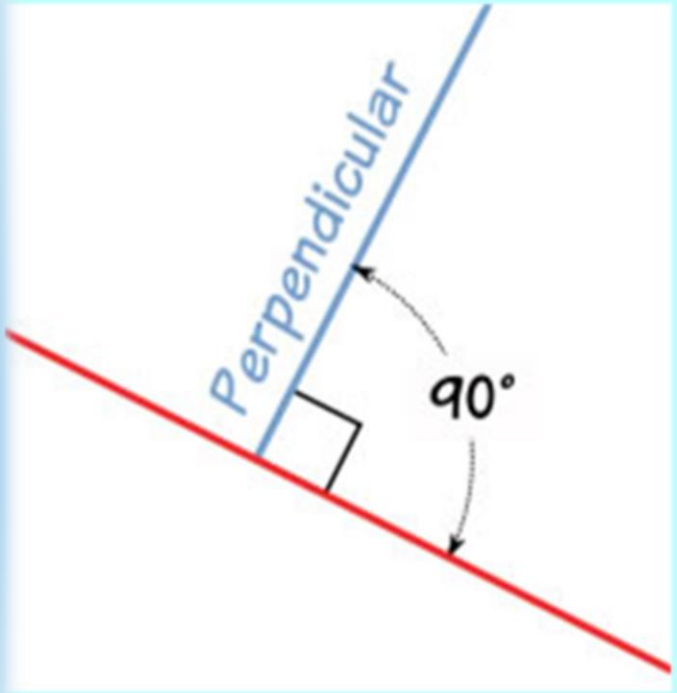
Why Parallel Lines Never Meet

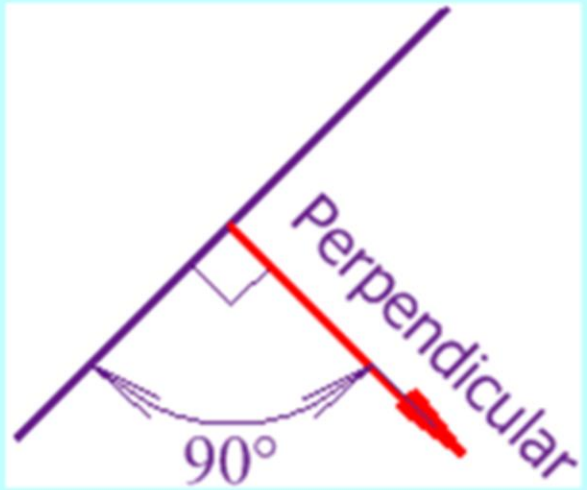
13.07.20

Perpendicular

It just means at right angles (90°) to.

The red line is perpendicular to the blue and purple lines in both these cases:





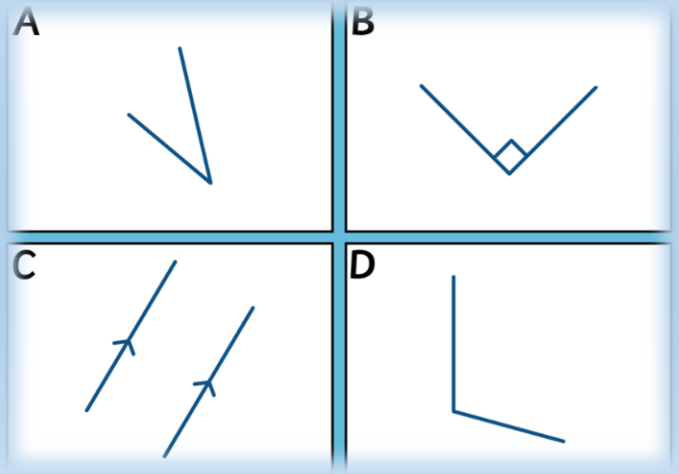
13.07.20

Identify Horizontal, Vertical, Parallel and Perpendicular Lines

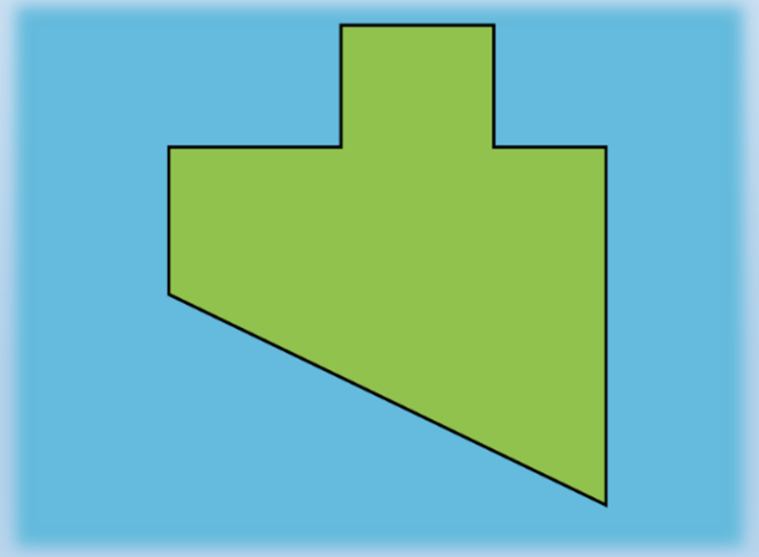
Lets practice!

Look at the practice questions below to get yourself ready! If you need further practice just let Mr. Spencer know!

Which image shows a pair of perpendicular lines?



How many vertical lines are in this shape?



14.07.20

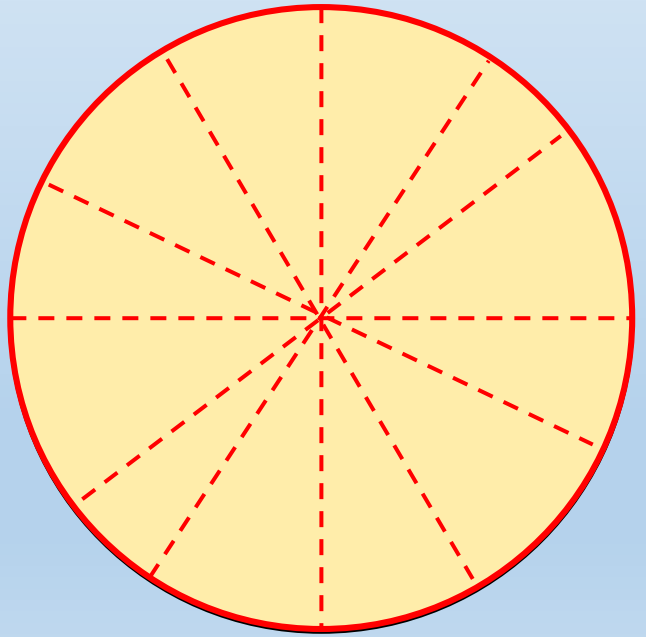
Compare and Classify Geometric Shapes

Today you are going to be comparing and classifying geometric 2D shapes.

In case you have forgotten any of the 2D shapes that we learnt about earlier in the Year, Mr Spencer has included a helpful (hopefully) guide.

Circle

How many curved sides?	1 curved side
How many vertices?	0 vertices
How many lines of symmetry?	almost infinite lines of symmetry
What do all the interior angles measure?	Sum of interior angle is 360°
How many pairs of parallel lines?	no pairs of parallel lines

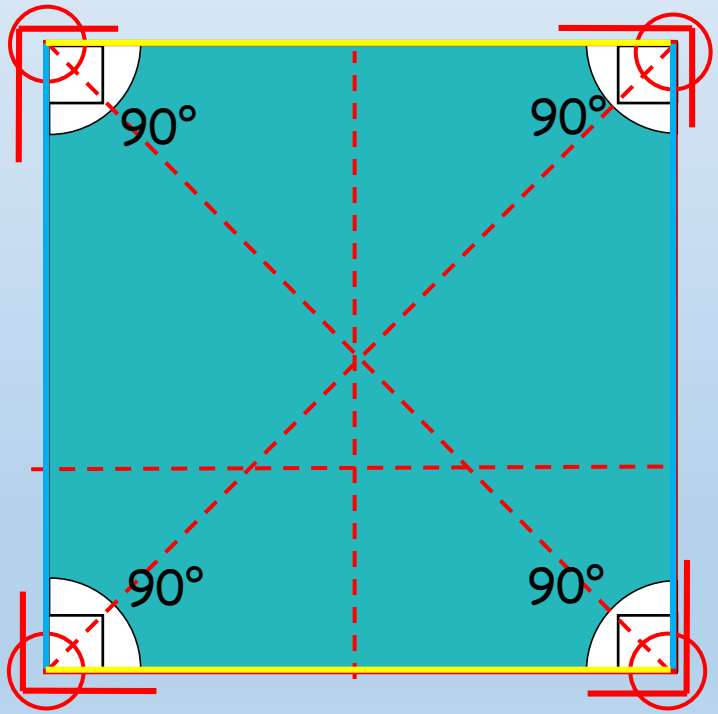


14.07.20

Compare and Classify Geometric Shapes

square

How many straight sides?	4 straight sides 4 equal length sides
How many vertices?	4 vertices
How many lines of symmetry?	4 lines of symmetry
How many interior angles?	4 interior angles
What does each interior angle measure?	each interior angle is 90°
What type of angles can you see in this shape?	4 right angles
How many pairs of parallel lines?	2 pairs of parallel lines
How many pairs of perpendicular lines?	4 pairs of perpendicular lines

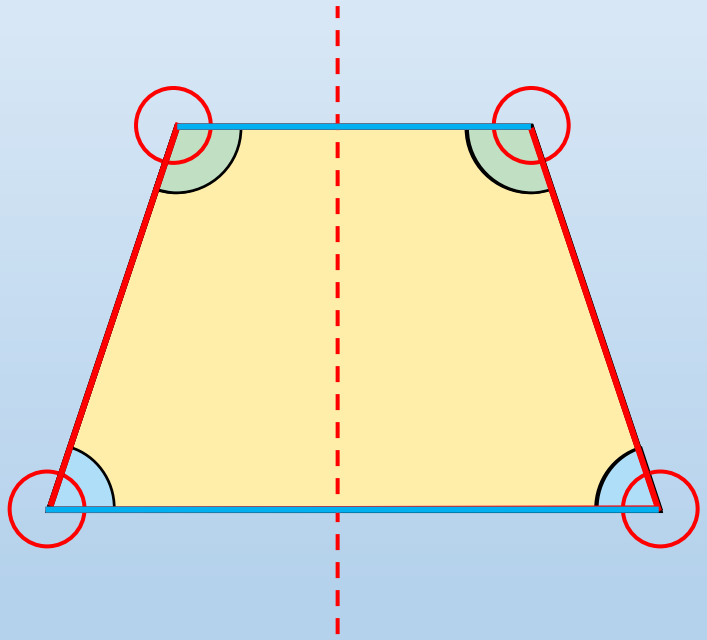


14.07.20

Compare and Classify Geometric Shapes

trapezium

How many straight sides?	4 straight sides 2 equal length sides
How many vertices?	4 vertices
How many lines of symmetry?	1 line of symmetry
How many interior angles?	4 interior angles
What type of angles can you see in this shape?	2 acute angles 2 obtuse angles
How many pairs of parallel lines?	1 pair of parallel lines

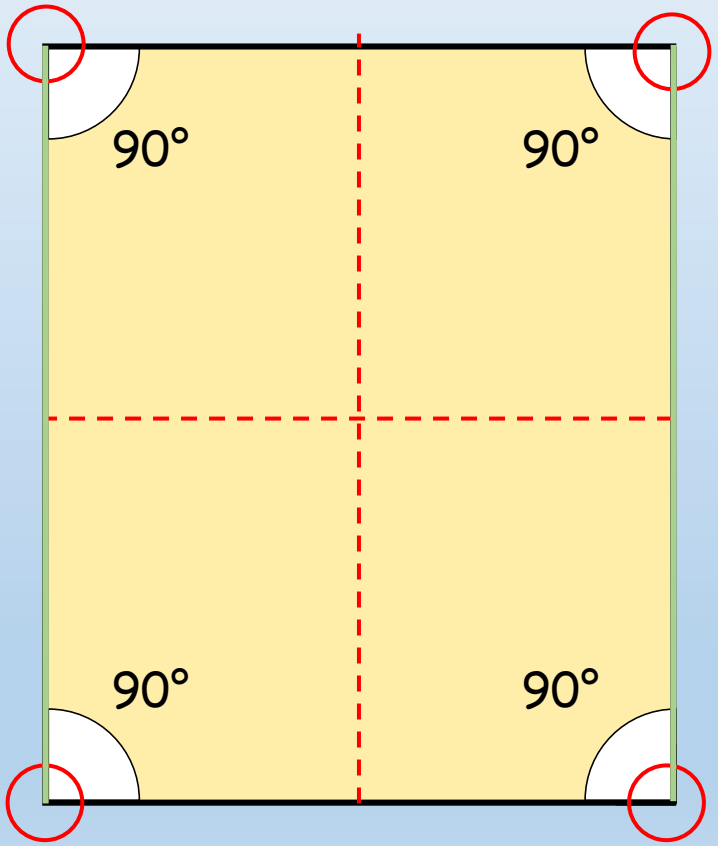


14.07.20

Compare and Classify Geometric Shapes

rectangle

How many straight sides?	4 straight sides 2 long sides 2 short sides
How many vertices?	4 vertices
How many lines of symmetry?	2 lines of symmetry
How many interior angles?	4 interior angles
What does each interior angle measure?	each interior angle is 90°
What type of angles can you see in this shape?	4 right angles
How many pairs of parallel lines?	2 pairs of parallel lines
How many pairs of perpendicular lines?	4 pairs of perpendicular lines

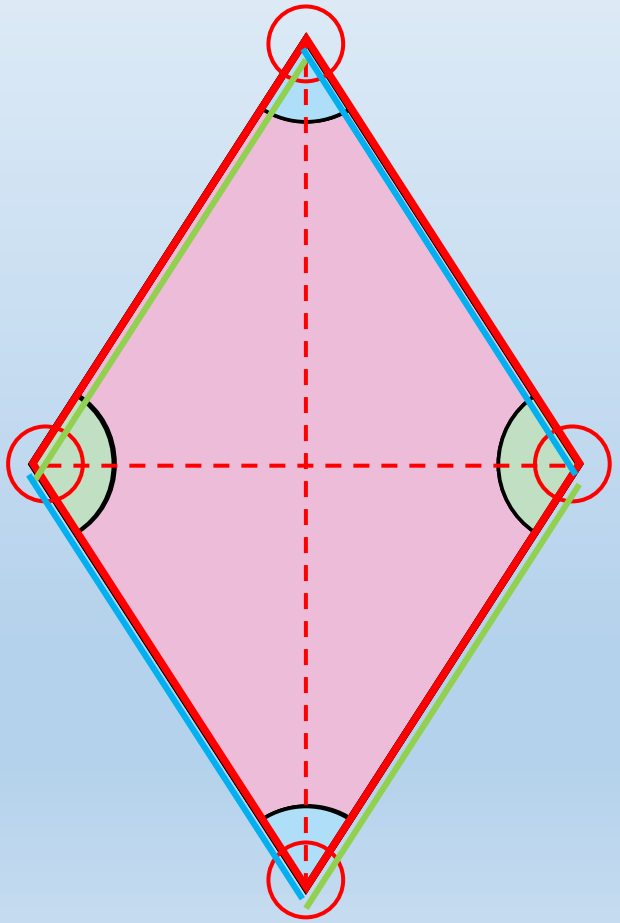


14.07.20

Compare and Classify Geometric Shapes

rhombus

How many straight sides?	4 straight sides 4 equal length sides
How many vertices?	4 vertices
How many lines of symmetry?	2 lines of symmetry
How many interior angles?	4 interior angles
How many pairs of interior angles?	2 pairs of interior angles
What type of angles can you see in this shape?	2 acute angles 2 obtuse angles
How many pairs of parallel lines?	2 pairs of parallel lines

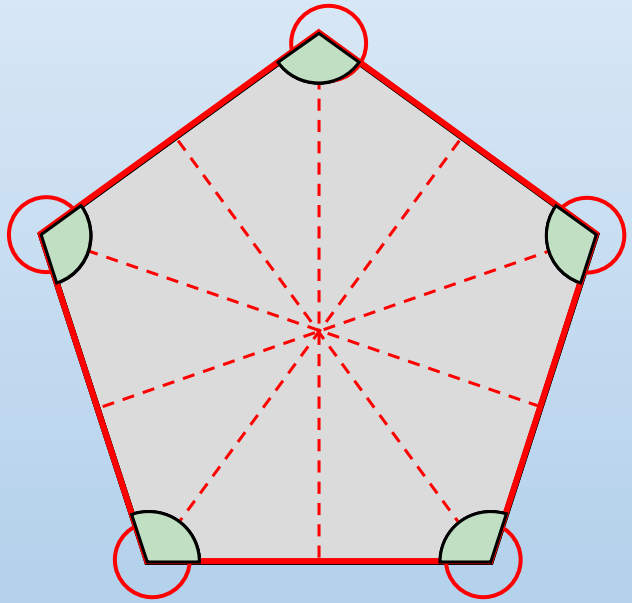


14.07.20

Compare and Classify Geometric Shapes

regular pentagon

How many straight sides?	5 straight sides
How many vertices?	5 vertices
How many lines of symmetry?	up to 5 lines of symmetry
How many interior angles?	5 interior angles
What type of angles can you see in this shape?	5 obtuse angles
How many pairs of parallel lines?	0 pairs of parallel lines

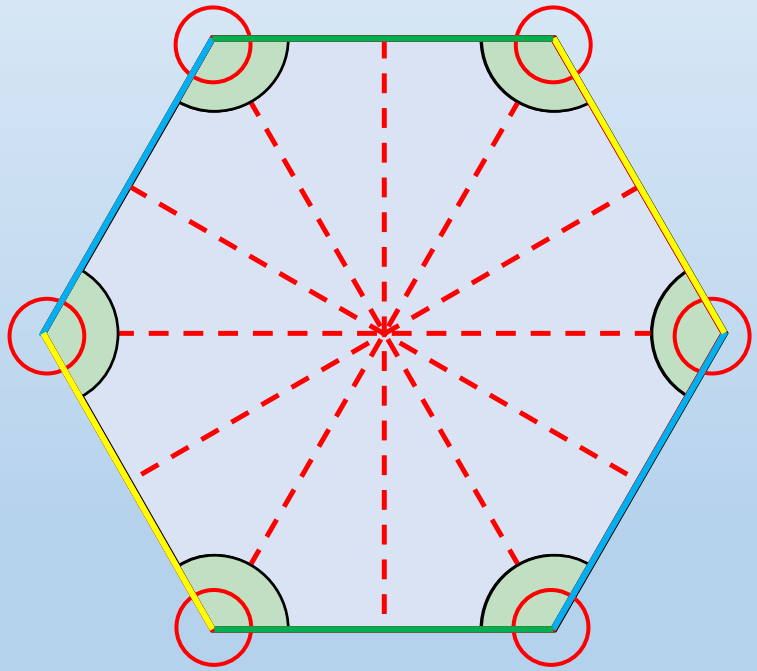


14.07.20

Compare and Classify Geometric Shapes

regular hexagon

How many straight sides?	6 straight sides
How many vertices?	6 vertices
How many lines of symmetry?	up to 6 lines of symmetry
How many interior angles?	6 interior angles
What type of angles can you see in this shape?	6 obtuse angles
How many pairs of parallel lines?	3 pairs of parallel lines

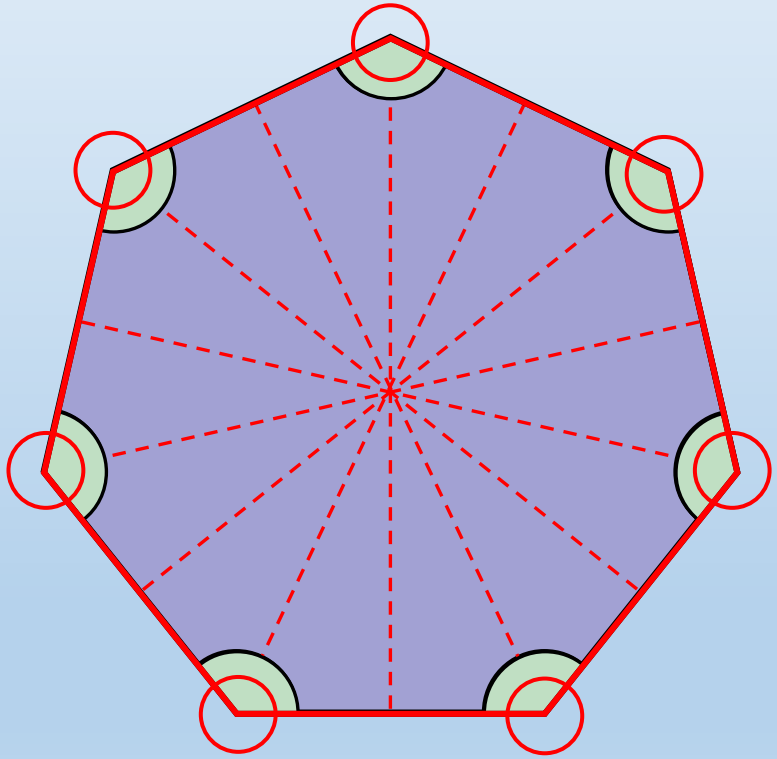


14.07.20

Compare and Classify Geometric Shapes

regular heptagon

How many straight sides?	7 straight sides
How many vertices?	7 vertices
How many lines of symmetry?	up to 7 lines of symmetry
How many interior angles?	7 interior angles
What type of angles can you see in this shape?	7 obtuse angles
How many pairs of parallel lines?	0 pairs of parallel lines

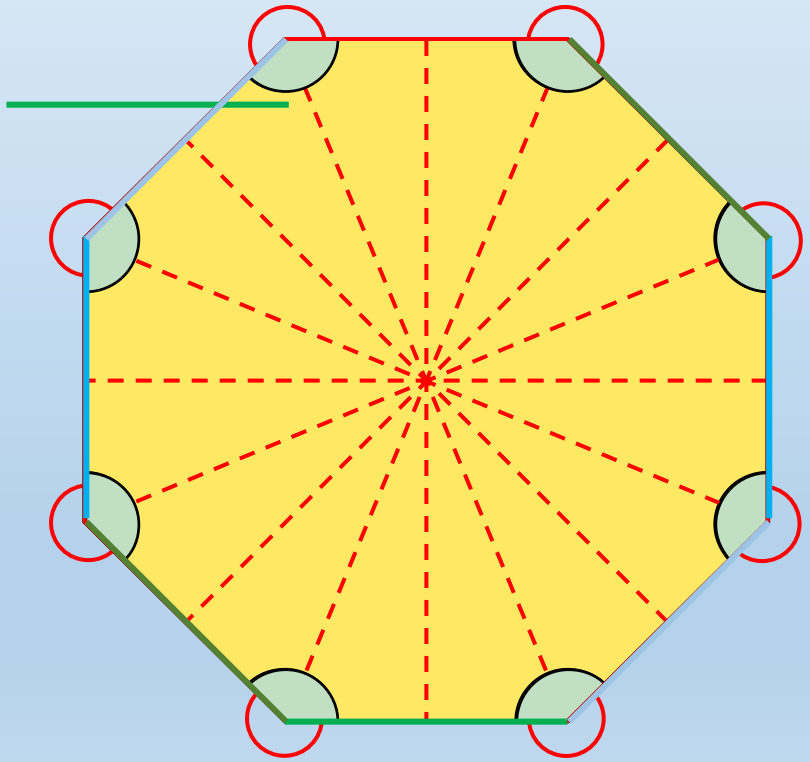


14.07.20

Compare and Classify Geometric Shapes

regular octagon

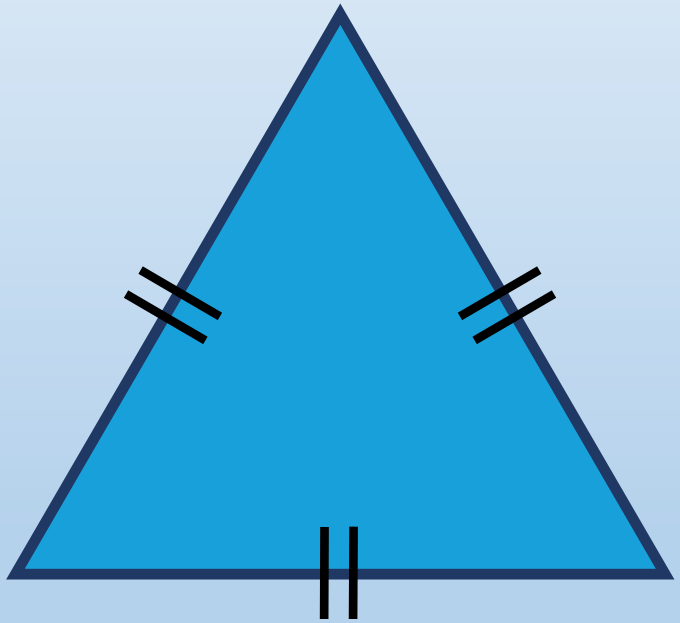
How many straight sides?	8 straight sides
How many vertices?	8 vertices
How many lines of symmetry?	up to 8 lines of symmetry
How many interior angles?	8 interior angles
What type of angles can you see in this shape?	8 obtuse angles
How many pairs of parallel lines?	4 pairs of parallel lines



Compare and Classify Geometric Shapes

14.07.20

Equilateral Triangle



Has 3 equal sides.

All its interior angles are the same.

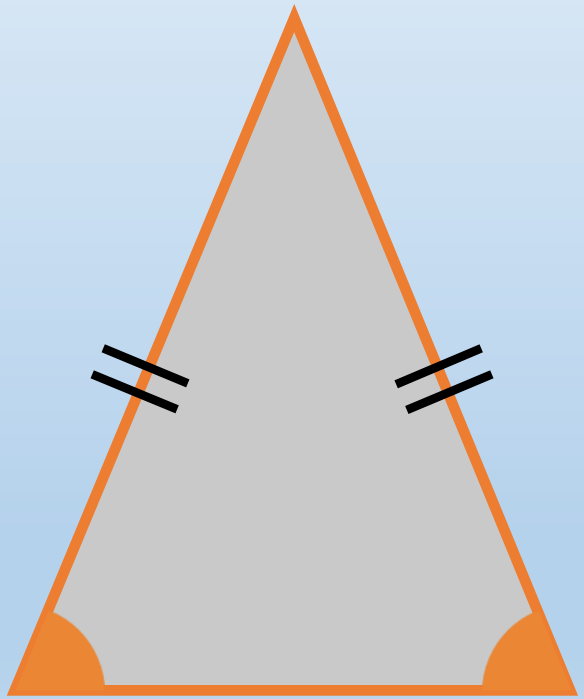
If the angles in a triangle add up to 180°, what must each interior angle in an equilateral triangle be?

60°

Compare and Classify Geometric Shapes

14.07.20

Isosceles Triangle



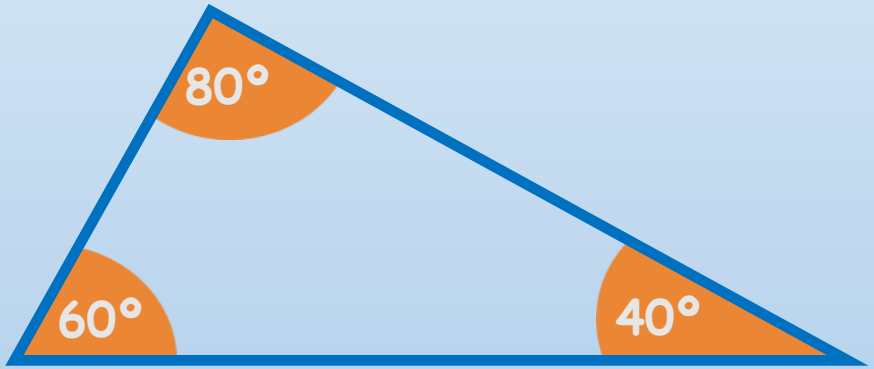
They have 2 equal sides.

They have 2 interior angles that are the same. These are called the base angles.

Compare and Classify Geometric Shapes

14.07.20

Scalene Triangle



All of its sides are different lengths.

All of its interior angles are different – but they still add up to 180°.

Compare and Classify Geometric Shapes

14.07.20

Right-Angled Triangle

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

The other two angles will add up to 90°

The longest side of a right-angled triangle is called the hypotenuse.

Compare and Classify Geometric Shapes

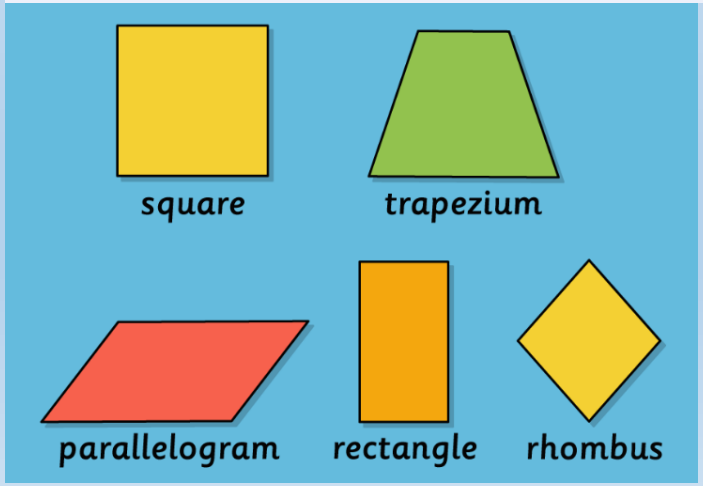
14.07.20

Let's practice!

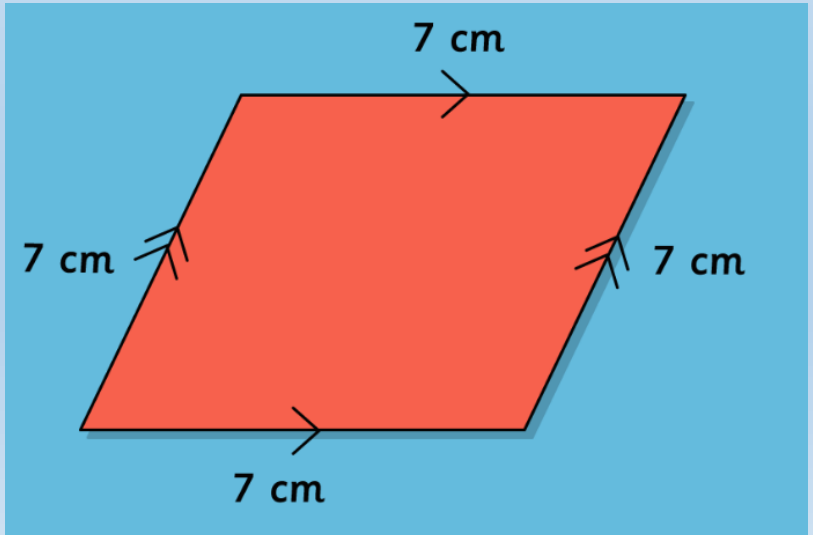
Have a look at the questions below to help get yourselves ready.

If you need any extra practice, please let Mr. Spencer know!

Mahad chooses one of the shapes shown. His shape has two pairs of parallel lines and at least one right angle. Not all of its sides are equal. Which shape did Mahad choose?



This shape can be known by what name?



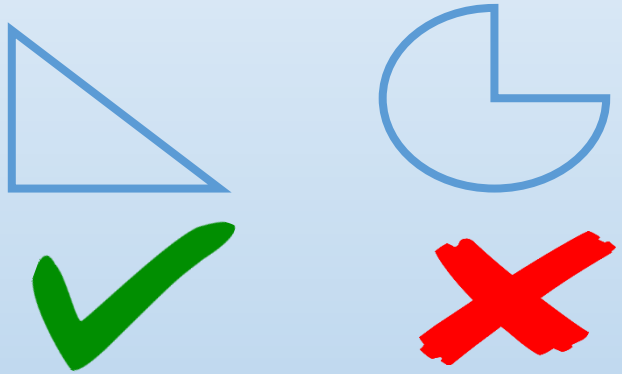
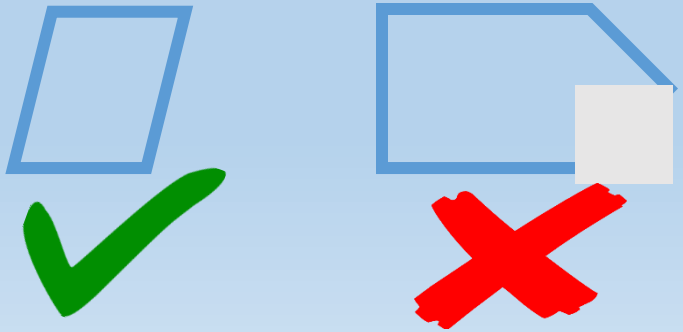
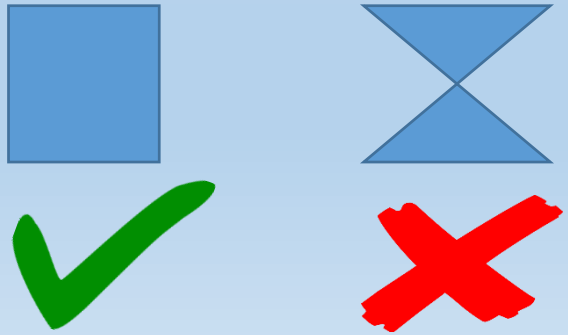
15.07.20

Recognise Regular and Irregular Polygons

Today you are going to be exploring regular and irregular polygons.

First of all, what is a polygon?

Look at the table on the right to help you understand what a polygon is.

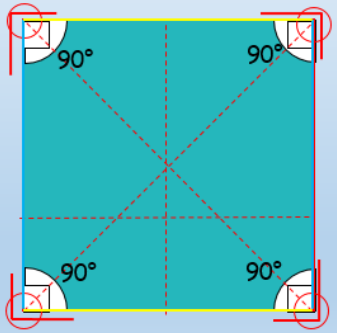
• **A shape with 3 or more sides** **Etc...**	• **All sides must be straight** 
• **No gaps in the shape** 	• **No sides can intersect** 

15.07.20

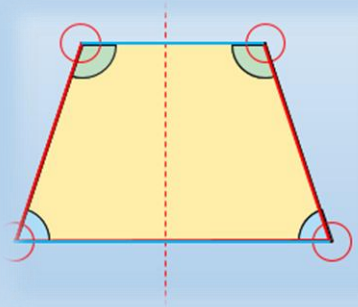
Recognise Regular and Irregular Polygons

- What is the difference between a regular and irregular polygon?

- A regular polygon has all sides equal length and all angles equal in size.



- An irregular polygon has some sides that are different lengths and/or angles which are different sizes.



15.07.20

Recognise Regular and Irregular Polygons

Let's practice!

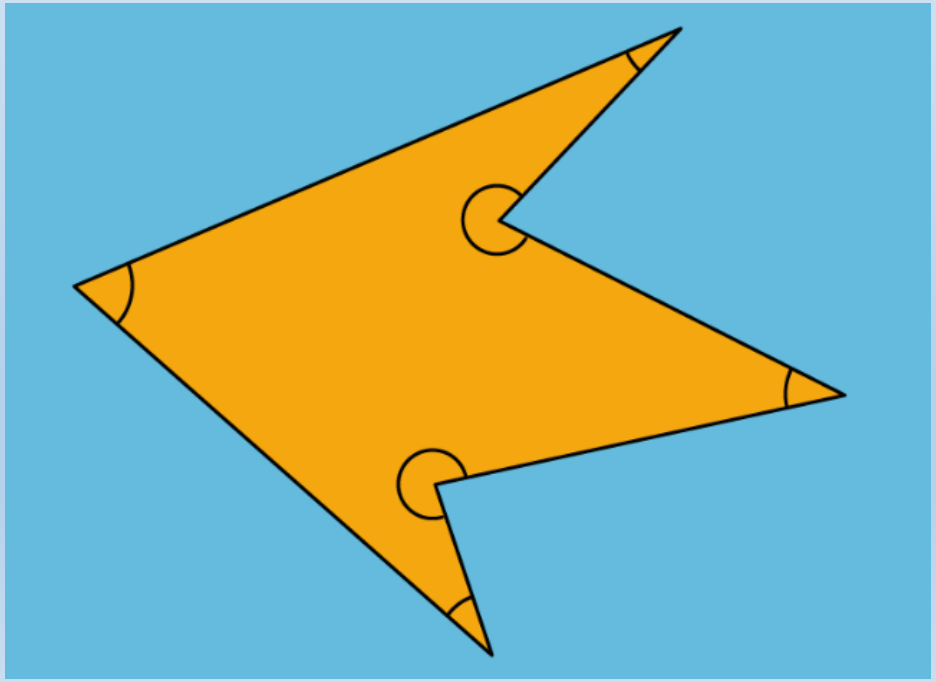
Have a look at the practice questions below to become pro!

What is a regular polygon called?

Properties of quadrilaterals

quadrilateral	always has equal sides	always has equal angles
kite	✗	✗
rhombus	✓	✗
square	✓	✓
trapezium	✗	✗
rectangle	✗	✓

How would you describe this shape?



16.07.20

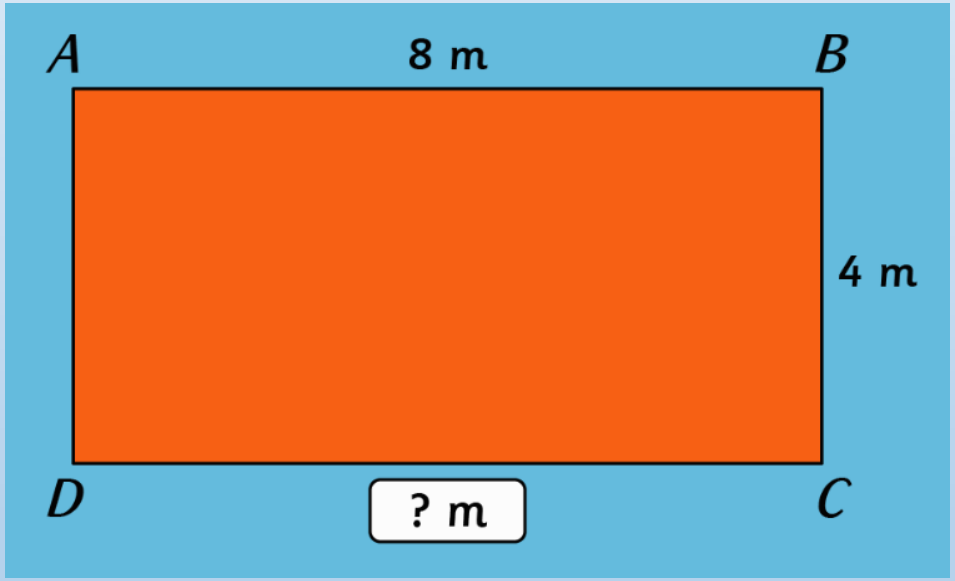
Use the Properties of Rectangles to Find Missing Lengths and Angles

Today you are going to be finding missing lengths and angles using your knowledge of the properties of rectangles.

Mr Spencer is pretty confident that you have a strong knowledge of the properties of a rectangle so we are going to get straight on with the practice questions!

Look at the rectangle. A horizontal side is 8m, how long is the parallel side?

To work this out, all we need to recognize is that a rectangle has two pairs of parallel (and equal in length) sides. Therefore the side that is parallel to the 8m side must have a length of 8m as well.



16.07.20

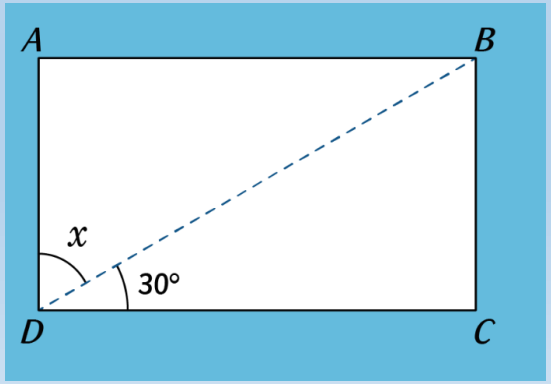
Use the Properties of Rectangles to Find Missing Lengths and Angles

Lets practise!

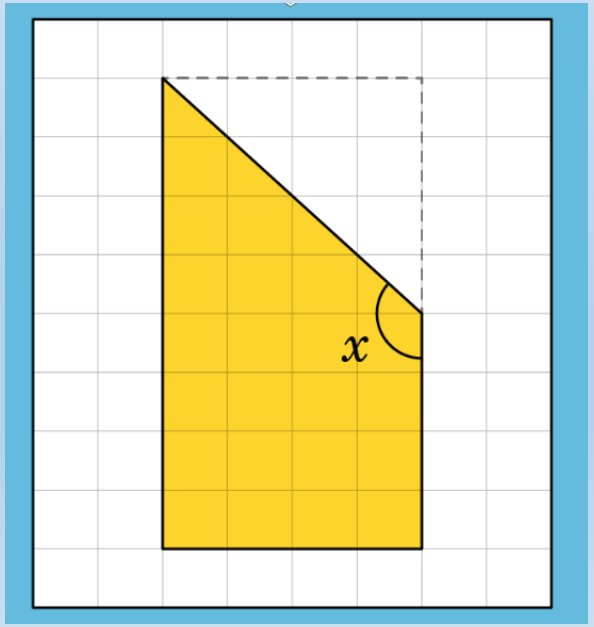
Have a look at the practise question to get started!

Work out the angle marked x.

Each angle of a rectangle measures 90 degrees. Angle D has been split into with part of the angle measuring 30 degrees. To work out angle x, all we need to do it calculate 90-30 = 60. Angle x equals 60 degrees.



What is the value of angle x? Remember, the angle along a straight line measures 180 degrees.



17.07.20

Recognise and Describe 3D Shapes

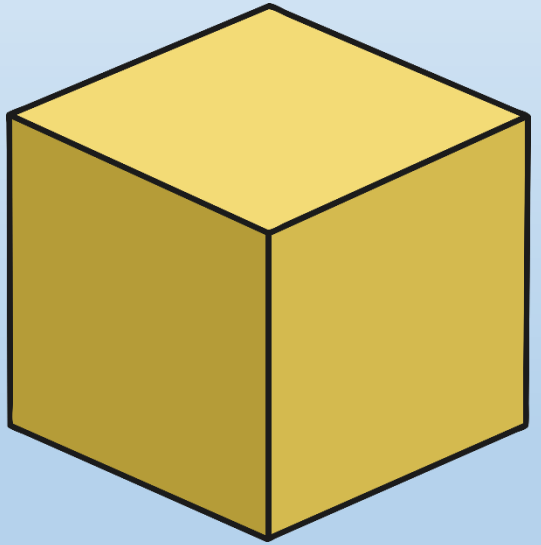
Today you are going to be describing and identifying 3D shapes.

In case you have forgotten any of the properties of 3D shapes, Mr. Spencer has prepared a guide to help you!

Cube

Cubes have:

- 6 faces;
- 12 edges
- 8 vertices;
- edges that are all the same length.



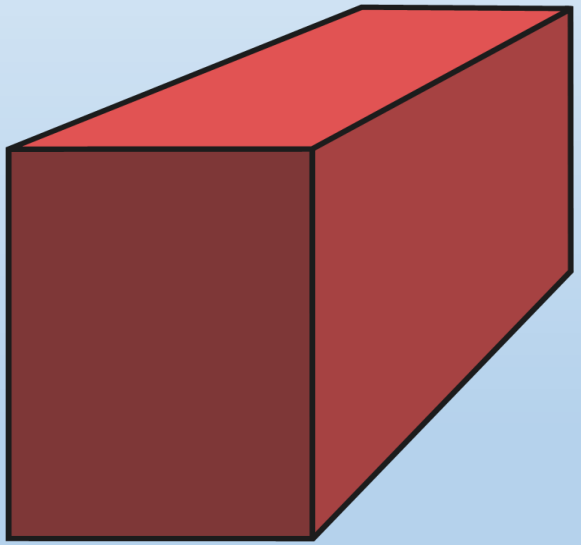
17.07.20

Recognise and Describe 3D Shapes

Cuboid

Cuboids have:

- 6 faces;
- 12 edges
- 8 vertices;
- edges that are **not** all the same length.



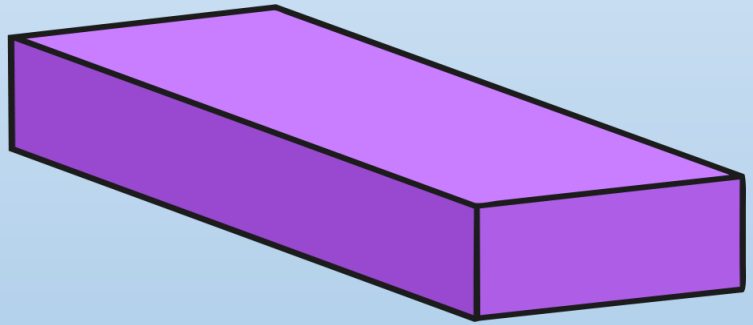
17.07.20

Recognise and Describe 3D Shapes

Rectangular Prism

Rectangular prisms have:

- 6 faces;
- 12 edges
- 8 vertices;
- edges that are **not** all the same length.



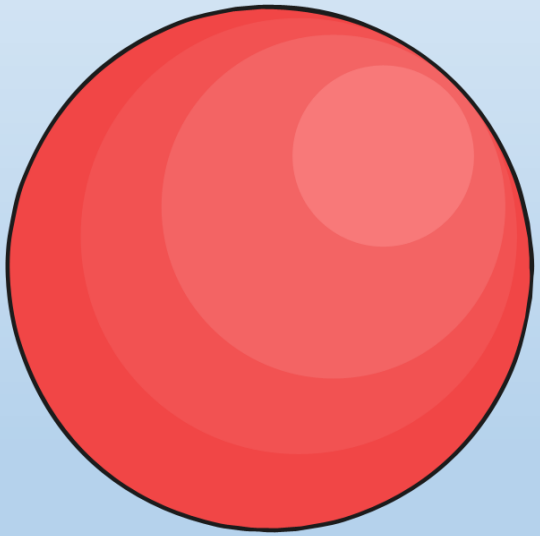
17.07.20

Recognise and Describe 3D Shapes

Sphere

Spheres:

- are perfectly round;
- have no edges;
- have no vertices.
- 1 curved surface



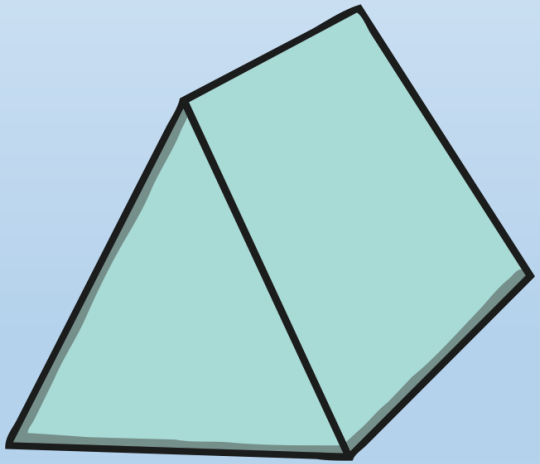
17.07.20

Recognise and Describe 3D Shapes

Triangular Prism

Triangular prisms have:

- 5 faces;
- 2 triangular faces;
- 3 rectangular faces;



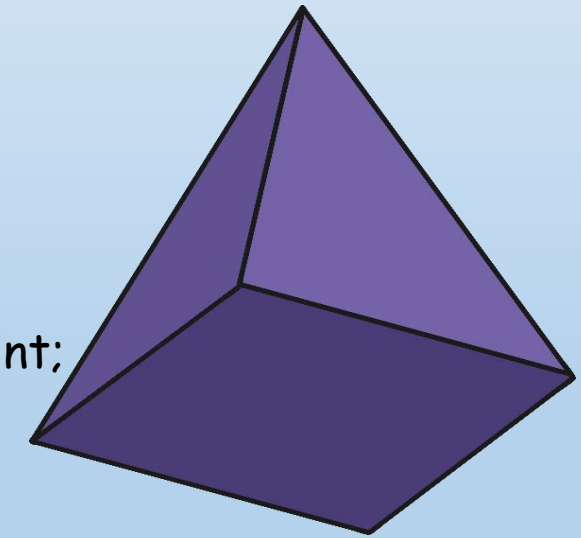
17.07.20

Recognise and Describe 3D Shapes

Square-Based Pyramid

Square-based pyramids have:

- a square base;
- 4 triangular faces that make a sharp point;
- 5 faces.



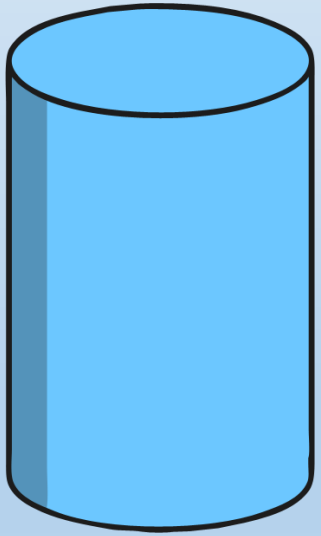
17.07.20

Recognise and Describe 3D Shapes

Cylinder

Cylinders have:

- 2 flat and circular faces;
- 1 curved surface;
- **no** vertices.



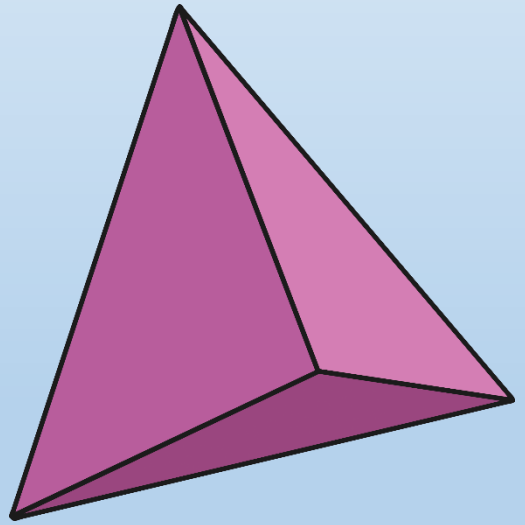
17.07.20

Recognise and Describe 3D Shapes

Tetrahedron

Tetrahedra have:

- 4 flat and triangular faces;
- 4 vertices;
- 6 edges.



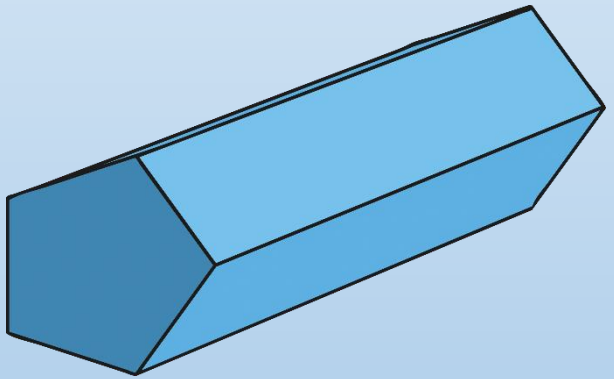
17.07.20

Recognise and Describe 3D Shapes

Pentagonal Prism

Pentagonal prisms have:

- 7 faces;
- 2 pentagonal faces;
- 5 rectangular faces;
- 15 edges;
- 10 vertices



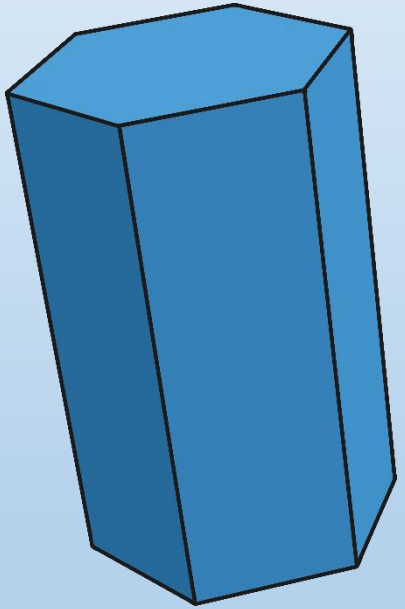
17.07.20

Recognise and Describe 3D Shapes

Hexagonal Prism

Hexagonal prisms have:

- 8 faces;
- 2 hexagonal faces;
- 6 rectangular faces;
- 18 edges;
- 12 vertices

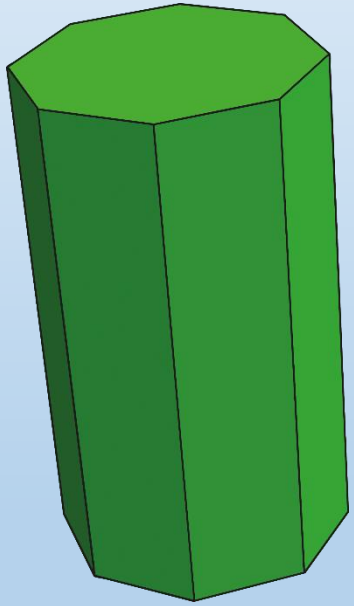


17.07.20

Recognise and Describe 3D Shapes

Octagonal Prism

Octagonal prisms have:



- 10 faces;
- 2 octagonal faces;
- 8 rectangular faces;
- 24 edges;
- 16 vertices

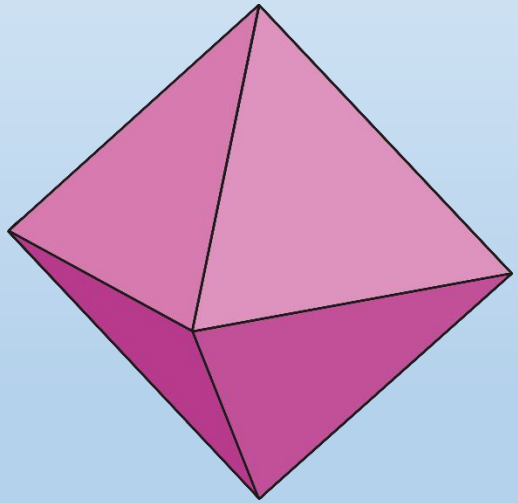
17.07.20

Recognise and Describe 3D Shapes

Octahedron

Octahedra have:

- 8 triangular faces;
- 12 edges;
- 6 vertices.



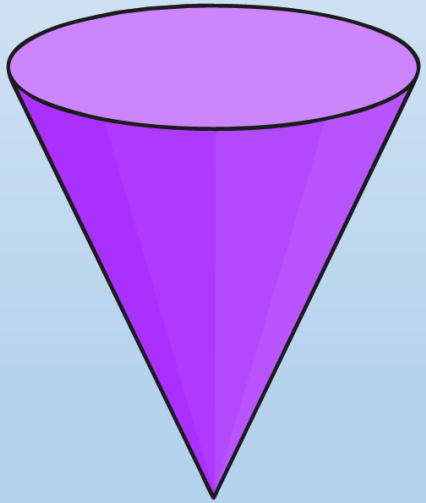
17.07.20

Recognise and Describe 3D Shapes

Cone

Cones have:

- 1 flat face which is a circle;
- 1 vertex;
- 1 edge;
- 1 curved surface.



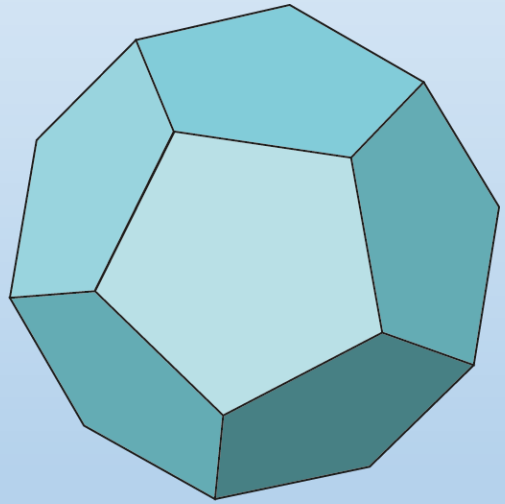
17.07.20

Recognise and Describe 3D Shapes

Dodecahedron

Dodecahedra have:

- 12 faces;
- 30 edges;
- 20 vertices.

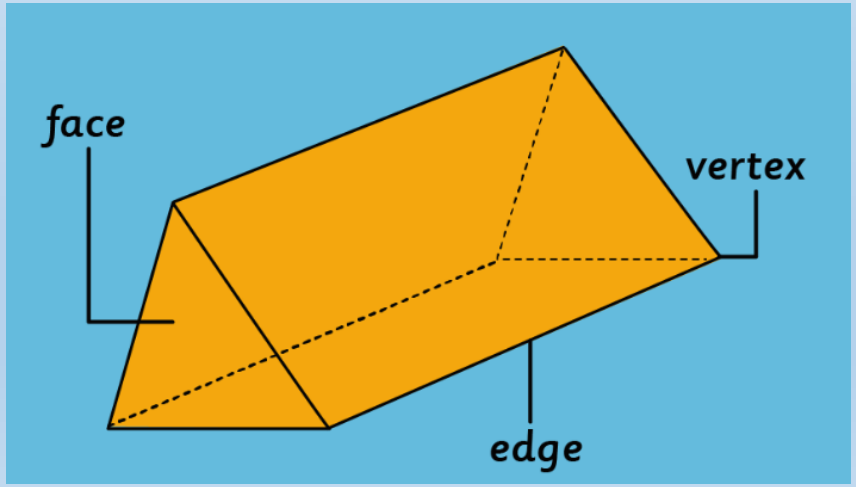
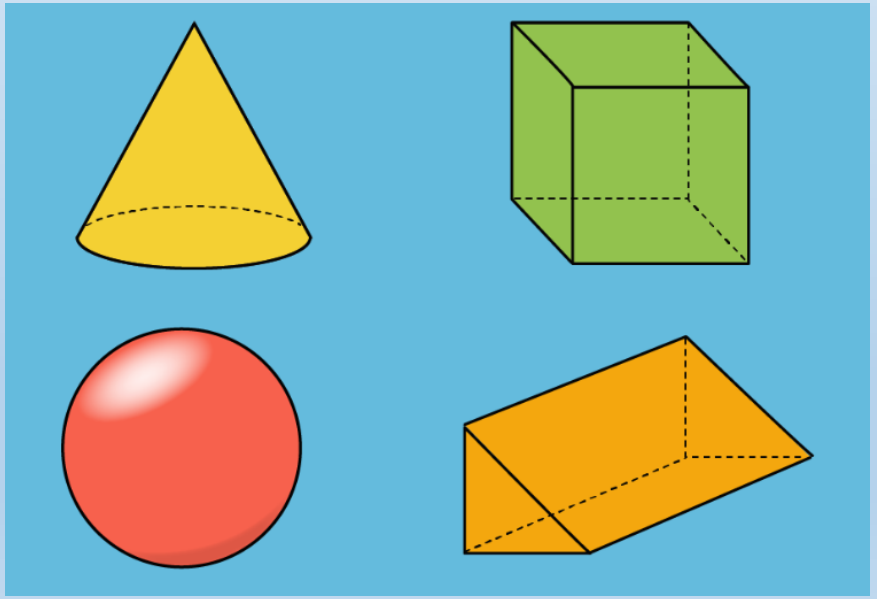


17.07.20

Recognise and Describe 3D Shapes

Look at the questions below to practise your skills. Remember, if you need any extra help or support, Mr Spencer will always be here to help.

How many faces does a triangular prism have?



Which shape has the most edges?