

# Tuesday Maths

L.O. To recognise 2D shapes.



## Mathematical Talk

How many angles does a \_\_\_\_\_ have?

What types of angles does a \_\_\_\_\_ have?

How many lines of symmetry does a \_\_\_\_\_ have?

What kind of lines of symmetry does a \_\_\_\_\_ have?  
(vertical/horizontal)

What types of lines can you spot in a \_\_\_\_\_?  
(perpendicular/parallel)

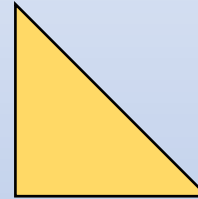
Can you guess the shape from the description given?

Can you draw a shape from the description given?

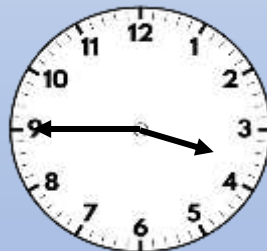
## Flashback: How much can you remember?

1) Which type of lines meet at a right angle?

2) How many right angles in this triangle?



3) How long is there between the two times?

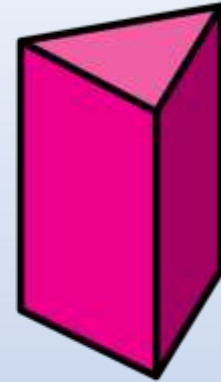


am



pm

4) 215p = £  and  p



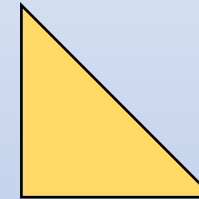
## Flashback: Answers

1) Which type of lines meet at a right angle?

Perpendicular

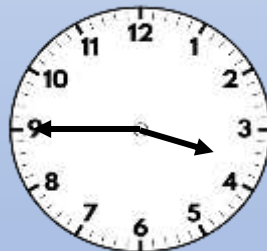


2) How many right angles in this triangle?

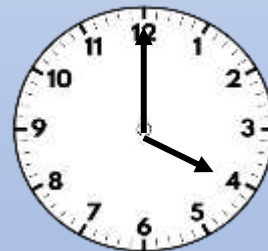


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3) How long is there between the two times?



am



pm

12 hours 15 minutes

4) 215p = £  and  p

## Learn:

Watch this video to give you a good understanding about 2D shapes

<https://vimeo.com/432264925>

Now watch the Polygon Party <https://www.bbc.co.uk/bitesize/topics/zvmxsbk/articles/z98n4qt>

## What are 2D shapes?

2D shapes are everywhere!

For example, windows are usually shaped like rectangles and clocks are shaped like circles.

2D shapes are flat and all have different properties.

**Properties** are the qualities that a shape has. Examples of shape properties are:

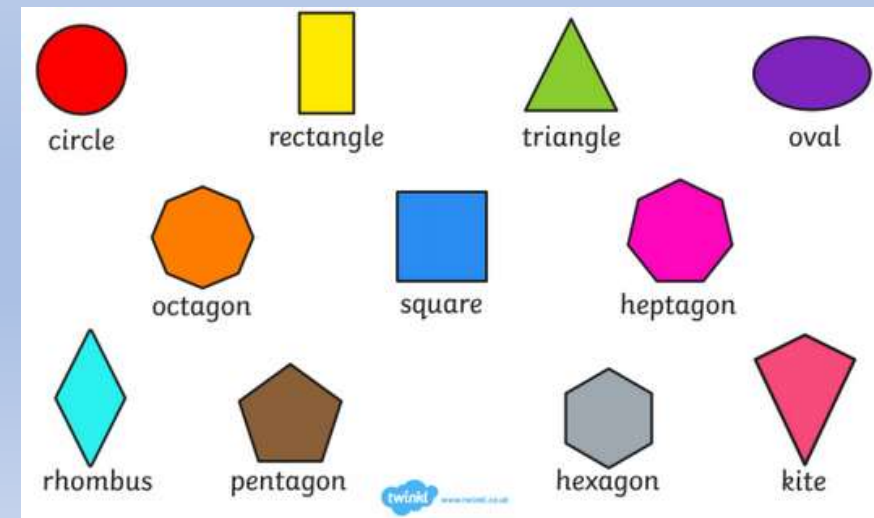
number of sides

number of angles (corners)

length of sides

types of angles (acute, obtuse, right-angle)

perpendicular and parallel lines

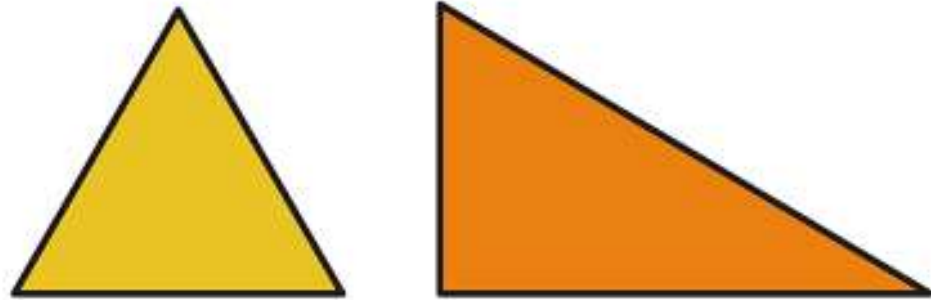


## Triangles

All triangles have **3 sides** and **3 angles**.

However, different triangles have different properties, depending on how they are drawn. You have to look very carefully to see what is different.

For example, compare these two triangles:



Like all triangles, both have 3 sides and 3 angles.

However, the yellow triangle's sides are all the **same length** and the angles are all the **same size**.

The green triangle has a **right-angle** and all the sides are a **different length**.

## Quadrilaterals

A quadrilateral is a shape with **4 sides** and **4 angles**.

These are some examples of quadrilaterals and their properties:



### Square

- Sides all equal length.
- Angles all right-angles (perpendicular lines)
- 2 pairs of parallel lines.



### Rectangle

- 2 sides longer than the others.
- Angles all right-angles (perpendicular lines)
- 2 pairs of parallel lines.



### Trapezium

- 1 pair of parallel lines.
- 2 sets of equal angles.
- 2 lines equal length and 2 that aren't.

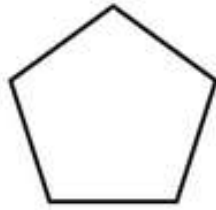


### Kite

- 2 pairs of equal sides.
- 1 pair of equal angles.
- No parallel lines.

## Regular polygons

These are shapes that have all **equal sides** and **equal angles**.



### Pentagon

- 5 equal sides and angles.



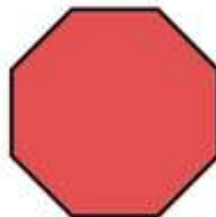
### Hexagon

- 6 equal sides and angles.
- 3 pairs of parallel lines.



### Heptagon

- 7 equal sides and angles.



### Octagon

- 8 equal sides and angles.
- 4 pairs of parallel lines.

## Irregular polygons

These are shapes that have sides and angles of **different sizes**.

You can always identify the polygon by how many sides it has, e.g. a pentagon is always a shape that has 5 sides.

### Example:




This irregular pentagon has sides and angles that are different lengths and sizes.


It has two right angles and one pair of equal sides. The other 3 sides are different lengths.

# Your Task:


1) Name the shapes and identify one property of each:



Name: \_\_\_\_\_  
Number of sides: \_\_\_\_\_



Name: \_\_\_\_\_  
Number of vertices: \_\_\_\_\_



Name: \_\_\_\_\_  
Property of your choice: \_\_\_\_\_



2) Circle the descriptions that match this shape:



I have 6 sides.

I have 5 vertices.

All my sides are the same length.

I am symmetrical.

1) Draw your own shape in the box which:

- has at least one acute angle (less than  $90^\circ$ );
- is symmetrical;
- has an odd number of sides.



2) Quadrilaterals are always symmetrical.

Is this true? Explain your answer.

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# Challenge:

Rosie describes a 2-D shape.



My shape has 2 pairs of parallel sides. The lengths of the sides are not all equal.

Draw the shape that Rosie is describing.

Could this square be Rosie's shape?



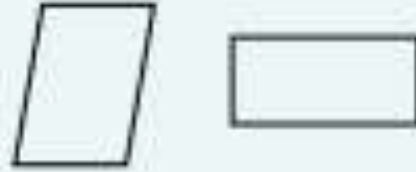
Explain why.

What is the same and what is different about these shapes?



## Challenge Answers:

Children could draw:



No this can't be Rosie's shape, because the lengths of the sides are equal.

Possible answers:  
All have at least 1 line of symmetry.  
They have different number of sides/angles.  
Only the triangle has a pair of perpendicular sides.