

Rotation

Monday, 19 November 2018 5:26 pm

★ By the end of the lesson I would hope that you have an understanding of the following. I would also hope that you can apply the understanding to a number of different questions and question types

- Know what it means by the term "Rotation"
- How the three things which define a rotation (Direction, Angle and Origin)
- Be able to draw an object which has been subjected to a rotation
- Be able to find the rotation from a drawing and the centre of rotation
- Understand what is meant by the term Rotational Symmetry
- Use computer software to see what happens with rotations

RECAP

In previous lessons we have been looking at how to transform basic shapes.

We have looked at how to take an object and **Reflect it** and **Translate it**.

There is one more important area of Mathematics we need to look at and that's **Rotation**.

Once we have completed the work on this topic, we can move onto the very exciting topic of Congruence.

What is a rotation

"You spin me right round baby right round" - Dead or Alive

"I'm spinning around" - Kylie Minogue

Three things which define a rotation

Whilst Kylie has been spinning around she might have been accurate to say:

"I'm spinning around, in a clockwise direction, 360 degrees centred around my feet" ... but it's not too catchy.

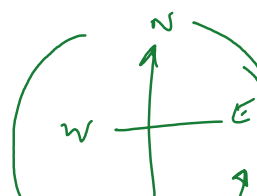
When looking at a rotation we need to consider:

Direction:

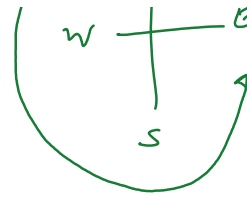


Angle we are turning:

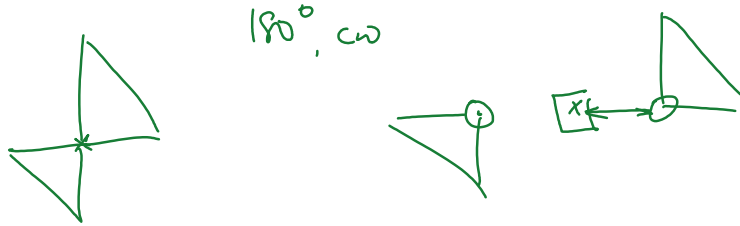
$90^\circ, 180^\circ, 270^\circ, 360^\circ$



$90^\circ, 180^\circ, 270^\circ, 360^\circ$



Where the centre of rotation is:

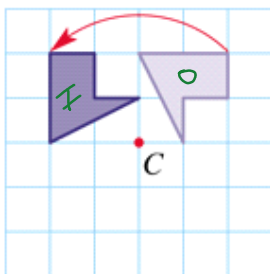


How to easily draw a rotation

The easiest way is to use another piece of paper.
Here's how!

How to read a rotation

The following question has been taken from the *Cambridge Essentials Textbook Series*:

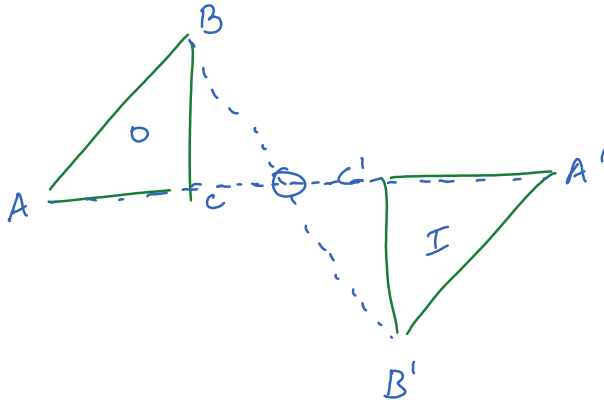


anti-clockwise
 90°
C.O.R is point C

Finding the centre of a rotation

Finding the centre is really easy.

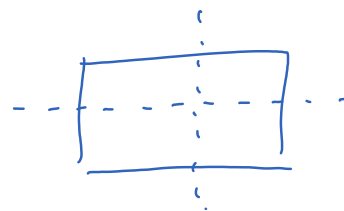
Connect the vertices which are the same in both the object and the image and where they all cross is where the centre of rotation is.



Rotational Symmetry

To find the **order of rotation** we are simply looking for how many times, in one revolution, a shape looks the same. This includes the shape at the very beginning. Hence, all shapes have at least one order of rotational symmetry.

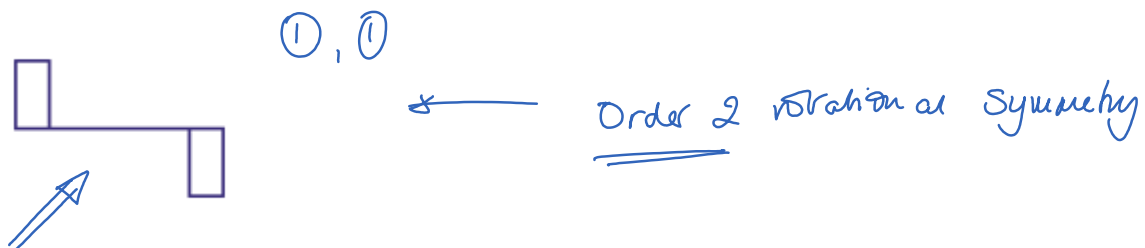
Notice the wording there: **Order 2 rotational symmetry**



Example:

The following question has been taken from the *Cambridge Essentials Textbook Series*:

Find the order of rotational symmetry for the following shape



Using Geogebra to show rotations (and other things!)

This software is AWESOME: <https://www.geogebra.org/graphing>

