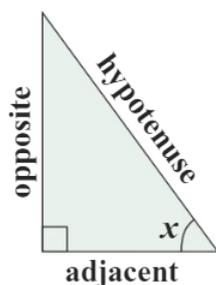# Trigonometry – W/C 22nd June 2020

Last week you had a first introduction to Trigonometry. This week we are going to continue with Trigonometry but this time use it to find missing angles (as opposed to sides).

I remind you of how we label our triangles (relative to the angle that we are using at the time) and the Ratios which you need to learn

In a right-angled triangle, the side opposite the right angle is cal the **hypotenuse**, the side opposite an angle is called the **oppos** and the side next to an angle is called the **adjacent**.

The three sides are linked by the following formulas:

$$\sin x = \frac{\text{opp}}{\text{hyp}}, \qquad \cos x = \frac{\text{adj}}{\text{hyp}}, \qquad \tan x = \frac{\text{opp}}{\text{adj}}$$

If you have chosen to use the Formula Triangles to avoid rearranging the formula then you need to learn them and how to use them.
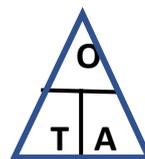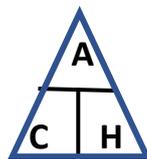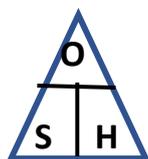
Learn - SOH CAH TOA   Learn to write it as $S^O H$ $C^A H$ $T^O A$

## Trigonometry-Finding missing angles

To find missing angles using trigonometry it only requires one new step, and that is the 'inverse' of sin, cos or tan. It is the notation of this that everyone finds confusing.

Task 1 : We are going to utilise our online resources again. Start with Mathswatch clip 168 at 7 minutes in. Write out the examples neatly in your books and have a go at all the questions. You may wish to leave out the exam style questions at the end unless you're feeling confident!

Watch Corbettmaths for some extra help and examples:
https://corbettmaths.com/2013/03/30/trigonometry-missing-angles/

There is also a good set of lessons on mymaths (using GCSE 9-1)/ Geometry/Trigonometry/Missing Angles – work through each part.
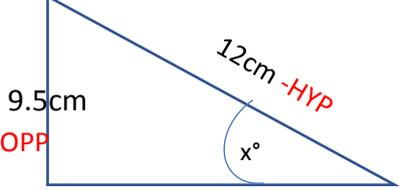
Model Example

Find x to 1 decimal place

1. First label the sides (In this case we know the **HYP** and the **OPP a**nd need to find the **angle (**don't care about the ADJ!)

2. Decide which ratio to use. As we do not need the ADJ the ratio is Sin (Angle) = $\frac{OPP}{HYP}$

3. If you are using the Formula Triangles, which I recommend, then cover up the 'S' (which represents the sin of the angle) in Sin triangle, this gives

Sin X = $\frac{9.5}{12}$

The next bit is the tricky bit because of the notation

It is saying I know the ratio is $\frac{9.5}{12}$ but what angle gives me this? – we have to use the inverse of the Sin to find this. Look at your calculator, above the sin button and you will see how this is written.

$\sin^{-1}$ is the inverse of the sin

So, we need to find $\sin^{-1}(\frac{9.5}{12})$ = 52.3°   (USE THE SHIFT BUTTON TO DO THIS – TRY IT!)

TASK 2: Complete a selection of questions from the CGP on-line book Pages 222 & 223 Exercise 1 Questions 4, and 5.

TASK 3: Complete the assignment on mathswatch.

Remember to write down anything that you are not comfortable with and bring it to the maths lesson the next time you are in school or e-mail me for help as before.