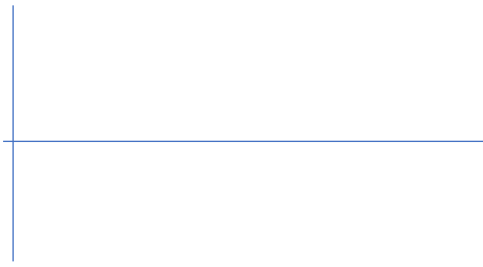
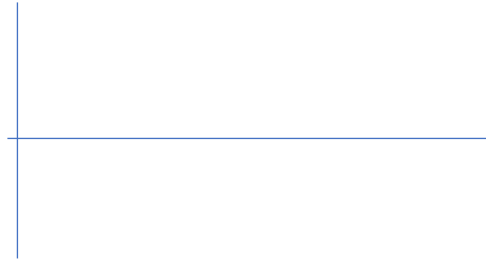


## Trigonometric Functions (Degrees)

1. Sketch  $y = \sin x$  for  $0 \leq x \leq 360$



Sketch  $y = \cos x$  for  $0 \leq x \leq 360$

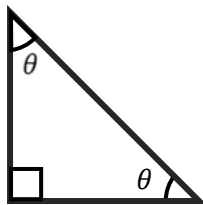


2. Based on your graphs, determine the value of  $y$  the following (NO CALCULATOR ALLOWED):

a)  $y = \sin 0$       b)  $y = \sin 90$       c)  $y = \sin 180$       d)  $y = \sin 270$       e)  $y = \sin 360$

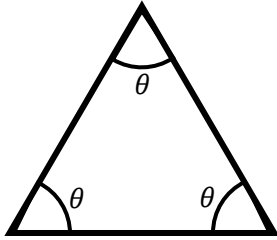
a)  $y = \cos 0$       b)  $y = \cos 90$       c)  $y = \cos 180$       d)  $y = \cos 270$       e)  $y = \cos 360$

3. Working out  $\sin 30$ ,  $\sin 45$  and  $\sin 60$ , **without a calculator** is slightly more complicated. We can use **trigonometry** though!



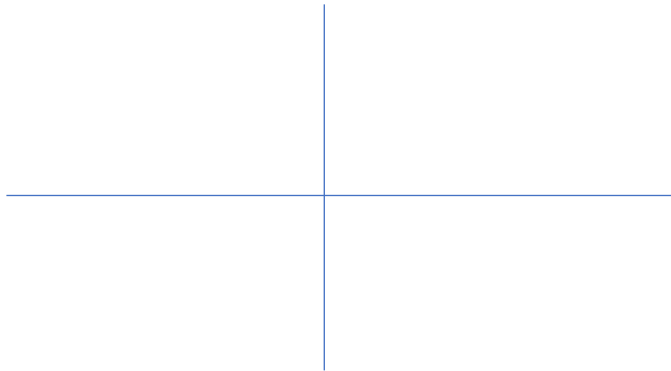
The triangle above can be used to work out values for  $\sin (45)$ , because it is an \_\_\_\_\_ and right-angled triangle. Therefore, the value of  $\theta$  is \_\_\_\_ degrees. Assume the equal sides are 1 cm long, except the hypotenuse, and then work out the value of  $\sin (45)$ , using SOH CAH TOA and Pythagoras. Then try  $\cos (45)$ .

4. This triangle below can be used to work out values for  $\sin(60)$  and  $\sin(30)$  because it is an \_\_\_\_\_ triangle, so the value of  $\theta$  is \_\_\_\_\_ degrees. Assuming each of the sides are 2 cm long, and by cutting the triangle exactly in half, work out the **exact** value of  $\sin(60)$  and  $\sin(30)$ .  
Hint: SOH CAH TOA and Pythagoras again...



5. Challenge for Math AA: Several angles are equivalent to  $30^\circ$ . Use the axes to find the angles, sketching  $30^\circ$  on first, then reflecting in the axes.

The angles are:



There is one important detail that changes. What is it?