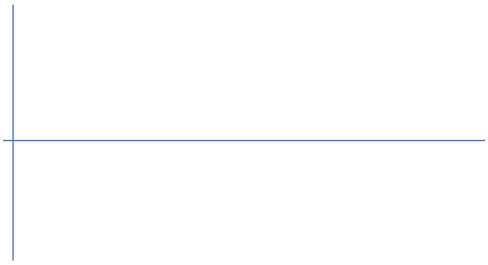
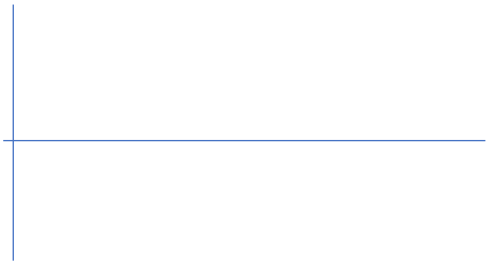
Trigonometric Functions (Radians)

Recall: $\pi = 180°$

1. Sketch $y = \sin x$ for $0 \leq x \leq 2\pi$



Sketch $y = \cos x$ for $0 \leq x \leq 2\pi$



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

a) $y = \sin 0$ b) $y = \sin\frac{\pi}{2}$ c) $y = \sin \pi$ d) $y = \sin\frac{3\pi}{2}$ e) $y = \sin 2\pi$

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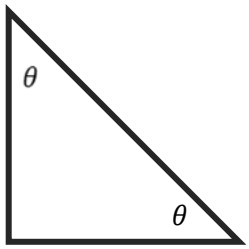
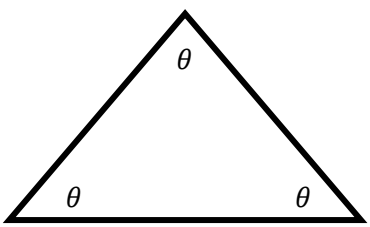
3. Working out $\sin\frac{\pi}{6}$, $\sin\frac{\pi}{4}$ and $\sin\frac{\pi}{3}$, ***without a calculator*** is slightly more complicated.

a) This triangle can be used to work out values for $\sin\frac{\pi}{4}$, because it is an _____ and right-angled triangle. Therefore, the value of θ is _____ degrees, which is equal to $\frac{\pi}{4}$ radians. Assuming each of the sides are 1 cm long, except the hypotenuse, work out the value of $\sin\frac{\pi}{4}$.
Hint: SOH CAH TOA and Pythagoras come in handy here

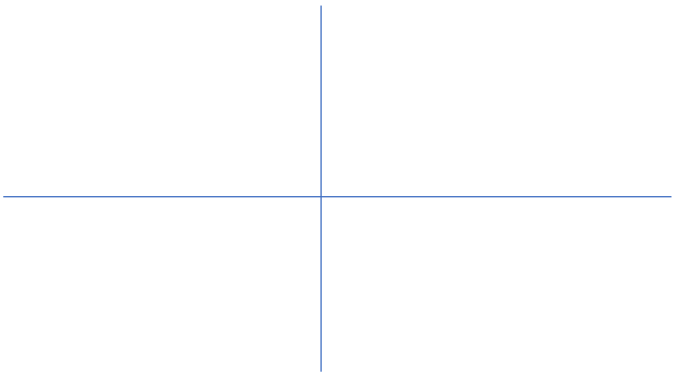


b) This triangle can be used to work out values for $\sin\frac{\pi}{3}$ and $\sin\frac{\pi}{6}$, because it is an _____ triangle, so the value of θ is _____ degrees, which is equal to _____ radians.
Assuming each of the sides are 2 cm long, and by cutting the triangle exactly in half, work out the ***exact*** value of $\sin\frac{\pi}{3}$ and $\sin\frac{\pi}{6}$. Hint: SOH CAH TOA and Pythagoras again...



4. Several angles are equivalent to $\frac{\pi}{6}$. Use the axes to find the angles, sketching $\frac{\pi}{6}$ on first, then reflecting in the axes.

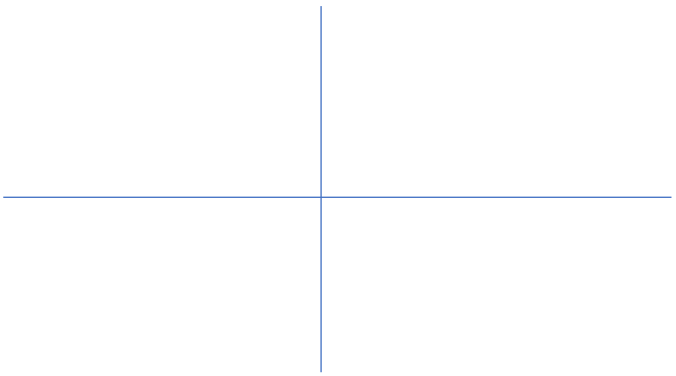
   The angles are:



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

2. Several angles are equivalent to $\frac{\pi}{3}$. Use the axes to find the angles, sketching $\frac{\pi}{3}$ on first, then reflecting in the axes.

   The angles are:



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