Pre-Calculus ACTIVITY
The Graphs of \( y = \sin x \) and \( y = \cos x \)

We are going to be working a great deal with the graphs of the various trigonometric functions. Before we do, you need to complete this activity. You will be creating a table of values and then graphing the respective points on the graph provided. You have to make a shift in your thinking. We have been working with the unit circle, so for the point \((x, y)\), \(x\) represented the cosine of an angle \(\theta\) and \(y\) represented the sine of the same angle. Our variables will now represent DIFFERENT things. For now, \(x\) will represent our angle in radians, and \(y\) will represent the sine or cosine value of that angle.

Use the unit circle for the quadrant angles and their various trig. values.

\[ y = \sin x \] Complete the table of values for \( y = \sin x \) and then graph the ordered pairs.
\[ y = \cos x \] Complete the table of values for \( y = \sin x \) and then graph the ordered pairs.

| \( x \) | \(-\pi\) | \(-\frac{5\pi}{6}\) | \(-\frac{2\pi}{3}\) | \(-\frac{\pi}{2}\) | \(-\frac{\pi}{3}\) | \(-\frac{\pi}{4}\) | 0 | \(\frac{\pi}{6}\) | \(\frac{\pi}{4}\) | \(\frac{\pi}{3}\) | \(\frac{2\pi}{3}\) | \(\pi\) | \(\frac{3\pi}{2}\) | \(\frac{2\pi}{3}\) | \(\frac{\pi}{3}\) | \(\frac{\pi}{4}\) | \(\frac{\pi}{6}\) | \(0\) | \(\pi\) | \(\frac{

Record generalizations about these trig. graphs to save time in the future...

**For \( y = \sin x \)**
- The maximum \( y \)-value is \( \text{______________} \) and occurs at the \( x \)-value(s) \( \text{_______________________________} \). The minimum \( y \)-value is \( \text{______________} \) and occurs at the \( x \)-value(s) \( \text{_______________________________} \). The graph of \( y = \sin x \) has \( \text{______________} \) symmetry, which means it is \( \text{______________} \). The \( x \)-intercepts, or zeroes, of \( y = \sin x \) occur at \( \text{_______________________________} \).

**For \( y = \cos x \)**
- The maximum \( y \)-value is \( \text{______________} \) and occurs at the \( x \)-value(s) \( \text{_______________________________} \). The minimum \( y \)-value is \( \text{______________} \) and occurs at the \( x \)-value(s) \( \text{_______________________________} \). The graph of \( y = \cos x \) has \( \text{______________} \) symmetry, which means it is \( \text{______________} \). The \( x \)-intercepts, or zeroes, of \( y = \sin x \) occur at \( \text{_______________________________} \).