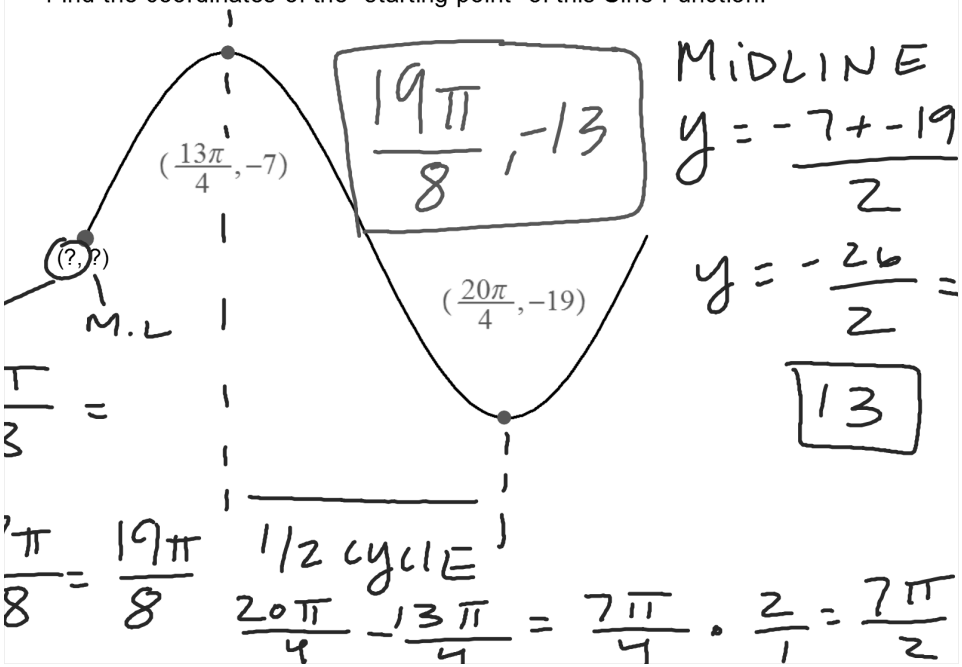
Find the coordinates of the "starting point" of this Sine Function.

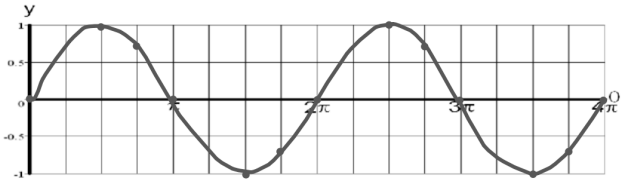


1. Coordinates of points on the Sine Function are graphed below in red.

x	θ	0	$\frac{\pi}{4}$	$\frac{\pi}{2}$	$\frac{3\pi}{4}$	π	$\frac{5\pi}{4}$	$\frac{3\pi}{2}$	$\frac{7\pi}{4}$	2π	$\frac{9\pi}{4}$	$\frac{5\pi}{2}$	$\frac{11\pi}{4}$	3π	$\frac{13\pi}{4}$	$\frac{7\pi}{2}$	$\frac{15\pi}{4}$	4π
y	Sinθ	0	0.71	1	0.71	0	−0.71	−1	−0.71	0	0.71	1	0.71	0	−0.71	−1	−0.71	0

2. Fill out the table below (round decimals to the nearest hundredth)

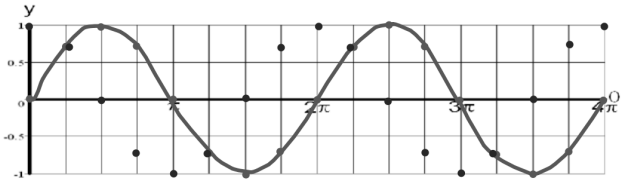
x	θ	0	$\frac{\pi}{4}$	$\frac{\pi}{2}$	$\frac{3\pi}{4}$	π	$\frac{5\pi}{4}$	$\frac{3\pi}{2}$	$\frac{7\pi}{4}$	2π	$\frac{9\pi}{4}$	$\frac{5\pi}{2}$	$\frac{11\pi}{4}$	3π	$\frac{13\pi}{4}$	$\frac{7\pi}{2}$	$\frac{15\pi}{4}$	4π
y	Cosθ																		



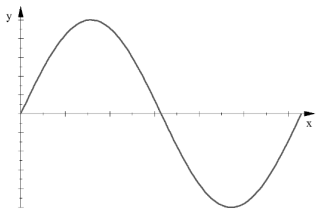
Graphs of Sine and Cosine

θ	0	$\frac{\pi}{4}$	$\frac{\pi}{2}$	$\frac{3\pi}{4}$	π	$\frac{5\pi}{4}$	$\frac{3\pi}{2}$	$\frac{7\pi}{4}$	2π	$\frac{9\pi}{4}$	$\frac{5\pi}{2}$	$\frac{11\pi}{4}$	3π	$\frac{13\pi}{4}$	$\frac{7\pi}{2}$	$\frac{15\pi}{4}$	4π
Sinθ	0	0.71	1	0.71	0	−0.71	−1	−0.71	0	0.71	1	0.71	0	−0.71	−1	−0.71	0

θ	0	$\frac{\pi}{4}$	$\frac{\pi}{2}$	$\frac{3\pi}{4}$	π	$\frac{5\pi}{4}$	$\frac{3\pi}{2}$	$\frac{7\pi}{4}$	2π	$\frac{9\pi}{4}$	$\frac{5\pi}{2}$	$\frac{11\pi}{4}$	3π	$\frac{13\pi}{4}$	$\frac{7\pi}{2}$	$\frac{15\pi}{4}$	4π
Cosθ	1	.71	0	-.71	-1	-.71	0	.71	1	.71	0	-.71	-1	-.71	0	.71	1



The Parent Function: y = Sinx

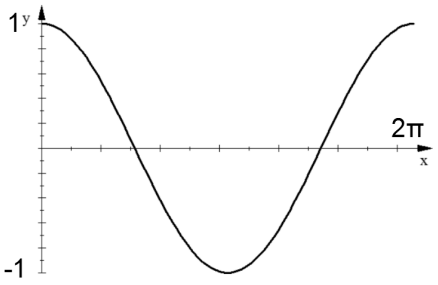


Period= 2π

Amplitude= 1

Eq of Midline: y = 0

The Parent Function: y = Cosx



Period= 2π

Amplitude= 1

Eq of Midline: y = 0

5. How is the graph of Cosx related to the graph of Sinx?

The have the same Period, Amplitude, and Midline.

The only difference is where they start.

ALSO

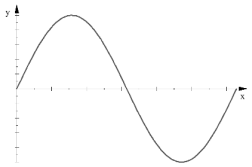
5. How is the graph of Cosx related to the graph of Sinx?

They are horizontal translations of each other.

To get the Sinx you translate Cosx 90° to the right
Sinx = Cos(x-90°)

To get the Cosx you translate Sinx 90° to the left
Cosx = Sin(x+90°)

Y = aSin(b(x ± h)) ± k

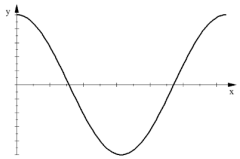


The starting point for the Parent Sine Function is:

on the Midline and goes Up as you move to the right

If you start on the Midline and go Down as you move to the right then
the graph is upside down and a is negative in the equation.

Y = aCos(b(x ± h)) ± k



The starting point for the Parent Cosine Function is:

at a Maximum.

If you start at a Minimum
then the graph is upside down and a is negative in the equation.

y = asinbx

a = Amplitude

a<0 is an x-axis reflection (upside down)

$$\text{Period} = \frac{2\pi}{b} \longrightarrow b = \frac{2\pi}{\text{Period}}$$

y = acosbx

a = Amplitude (vertical Stretch or Shrink factor)

a<0 is an x-axis reflection (upside down)

$$\text{Period} = \frac{2\pi}{b} \longrightarrow b = \frac{2\pi}{\text{Period}}$$

Find the Period and Amplitude of each Cosine function.

1. $y = -9\text{Cos}5x$

Period = $\frac{2\pi}{5}$

Amplitude = 9

2. $y = 3\text{Cos}\left(\frac{x}{7}\right)$

Period = $\frac{2\pi}{1/7} = 2\pi \cdot \frac{7}{1} =$

Amplitude = 3