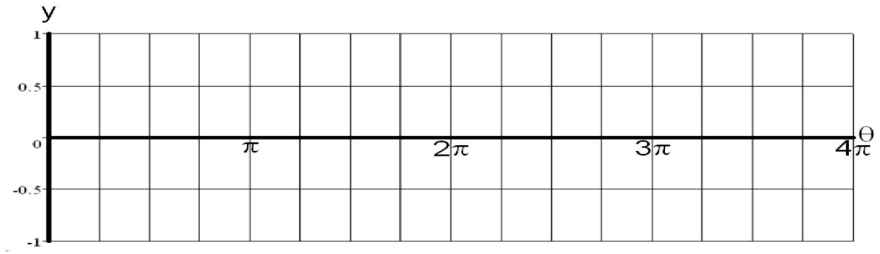
Use a calculator to fill in the table. Round to the nearest hundredth.

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																	

Graph the data in this table to see what the Sine Function looks like.

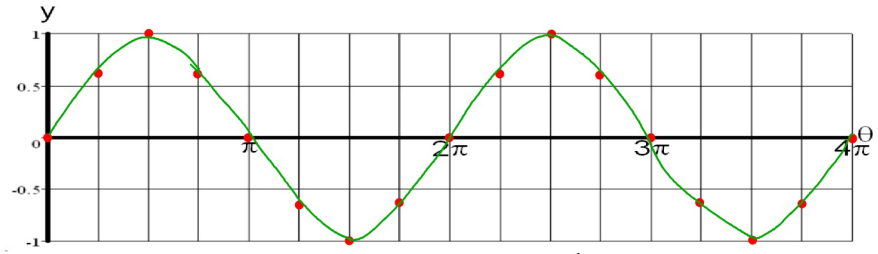


Period = Amplitude = Eq of Midline:

Use a calculator to fill in the table. Round to the nearest hundredth.

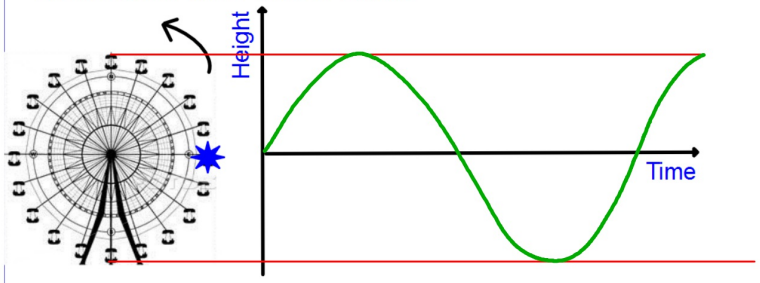
θ	0	$\frac{\pi}{4}$	$\frac{\pi}{2}$	$\frac{3\pi}{4}$	π	$\frac{5\pi}{4}$	$\frac{3\pi}{2}$	$\frac{7\pi}{4}$	2π	$\frac{9\pi}{4}$	$\frac{5\pi}{2}$	$\frac{11\pi}{4}$	3π	$\frac{13\pi}{4}$	$\frac{7\pi}{2}$	$\frac{15\pi}{4}$	4π
Sinθ	0	.71	1	.71	0	-.71	-1	-.71	0	.71	1	.71	0	-.71	-1	-.71	0

Graph the data in this table to see what the Sine Function looks like.



Period = 2π Amplitude = 1 Eq of Midline: $y=0$

Suppose the you get on a Ferris Wheel at the spot marked with the star. Sketch the graph of your height above/below the spot marked with the star as the Ferris Wheel turns.

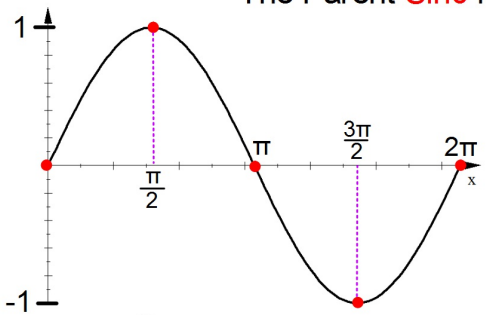


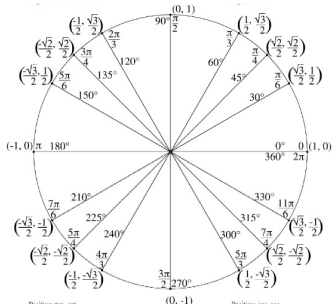
The graph of sinθ mimicks the graph of the height of a ferris wheel above its center. This makes sense because sinθ is defined as a y-coordinate which is a vertical distance from the origin.

https://www.geogebra.org/m/hrFQRycn

http://www.intmath.com/trigonometric-graphs/1-graphs-sine-cosine-amplitude.php

The Parent Sinθ function:





Period = 2π

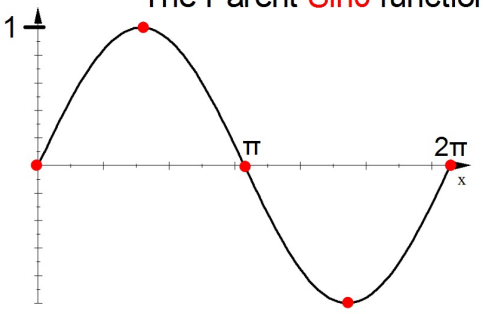
Amplitude = 1

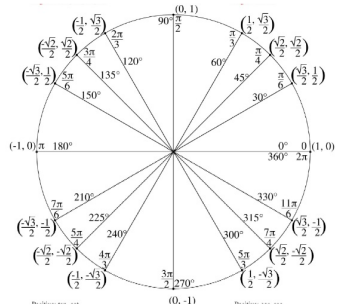
Eq of Midline: $y=0$

Max = 1 when $x=\frac{\pi}{2}$

Min = -1 when $x=\frac{3\pi}{2}$

The Parent Sinθ function:





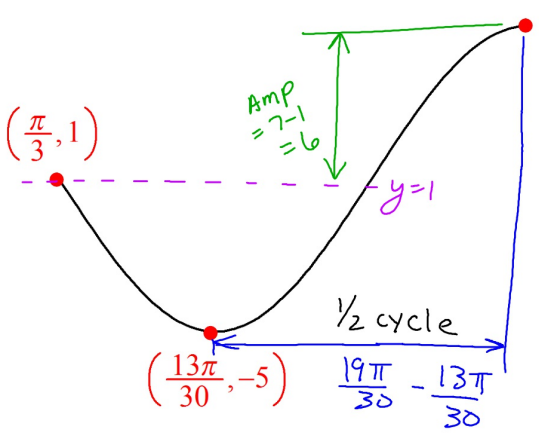
x-int at $0, \pi, 2\pi$

y-int when $x=0$

Domain: $(-\infty, \infty)$

Range: $[-1, 1]$

Find the period, amplitude, and equation of the midline for this portion of a Sine graph.



Amplitude: 6

Eq of Midline: $y=1$

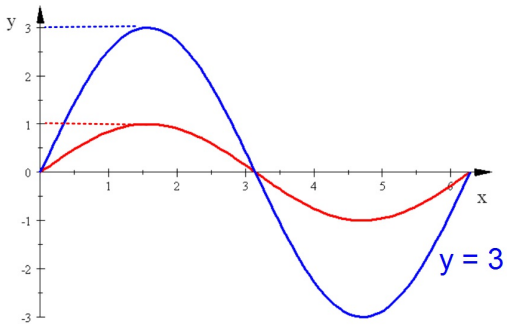
Period:

$$\frac{\frac{6\pi}{30}}{\frac{1}{2}} = \frac{6\pi}{30}\cdot\frac{2}{1} = \frac{2\pi}{5}$$

Graph of y=sinx Exploration

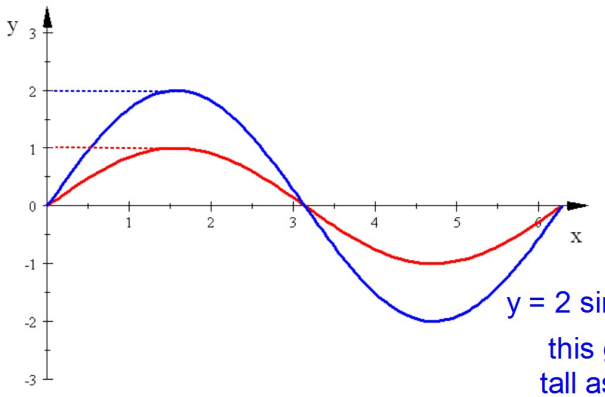
Students were given an exploration on how changing values in the equation of y=sinx affects the graph.

Parent Function: y = sinx



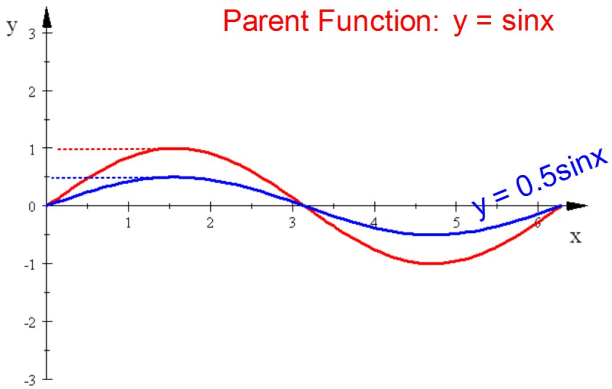
this graph is three times taller than the Parent Function

Parent Function: y = sinx



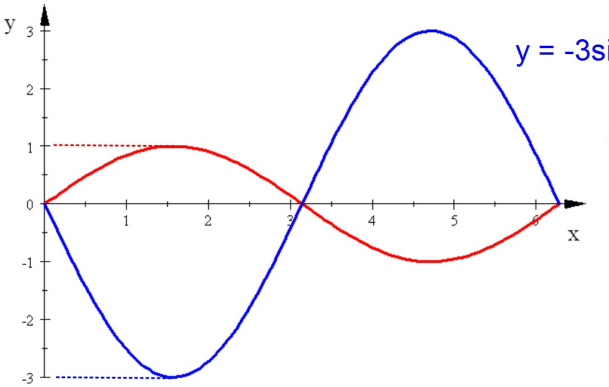
this graph is twice as tall as the Parent Function

Parent Function: y = sinx



this graph is half as tall as the Parent Function

Parent Function: y = sinx



this graph is three times taller than the Parent Function and Upside Down.

$y = a\sin x$

a = Amplitude (Vertical Stretch Factor)

Can you have a negative Amplitude?

No, since amplitude is a distance, it can't be negative.

If $a<0$ then there is an x-axis reflection.

Upside down