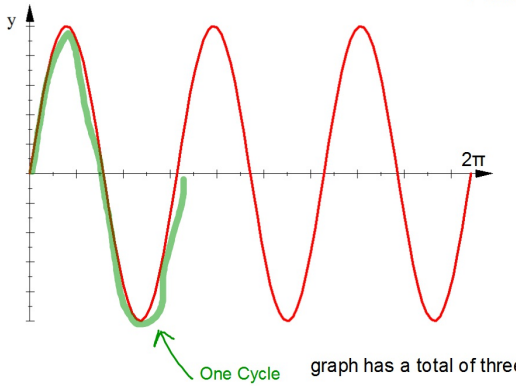
What is the period of each?

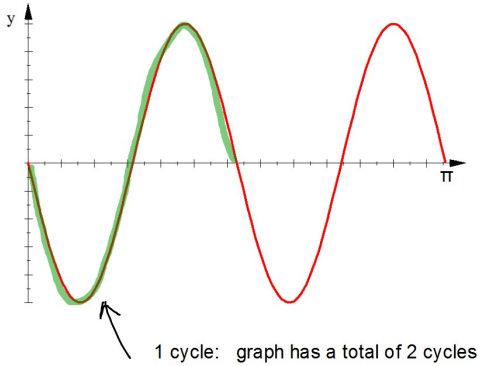


Period = $\frac{2\pi}{3}$

Period = $\frac{\text{Total Distance}}{\text{\# of Cycles}}$

One Cycle graph has a total of three cycles

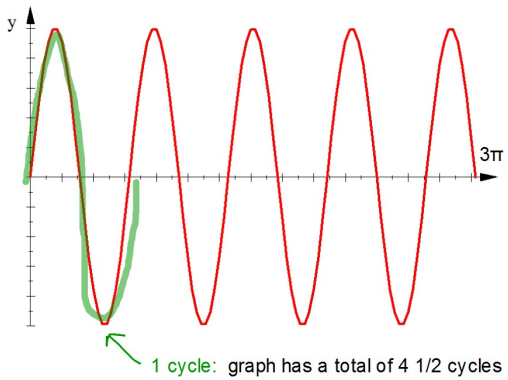
What is the period of each?



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

1 cycle: graph has a total of 2 cycles

What is the period of each?



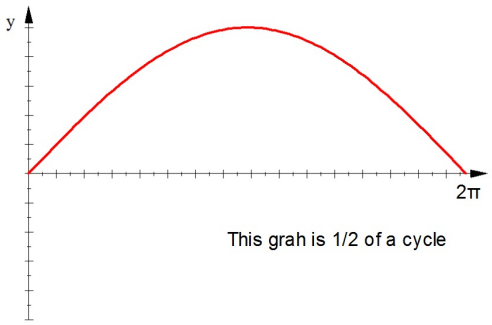
1 cycle: graph has a total of 4 1/2 cycles

Period = $\frac{3\pi}{4\frac{1}{2}} = \frac{3\pi}{\frac{9}{2}}$

$= 3\pi \cdot \frac{2}{9}$

$= \boxed{\frac{2\pi}{3}}$

What is the period of each?



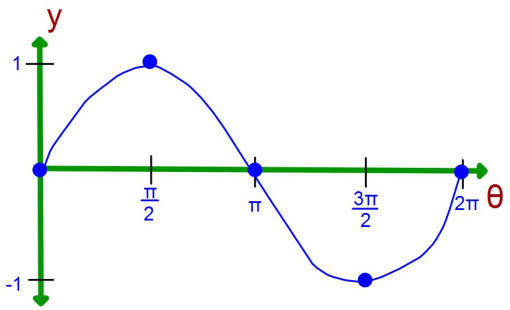
This grah is 1/2 of a cycle

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

4π

Graph of y=sinθ

The height (y-coord) as you move around a Unit Circle.



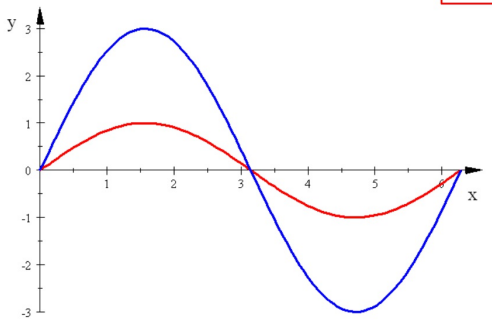
What is the period of the Sine Function?

2π

Graph of y=asinbx Exploration

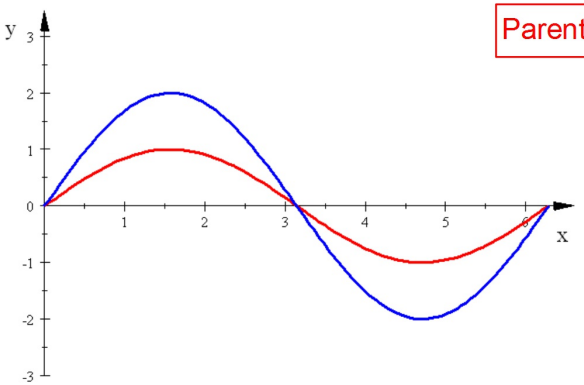
Graph of y=sinx Exploration

Parent Function: y = sinx



y = 3 sinx

3 times taller

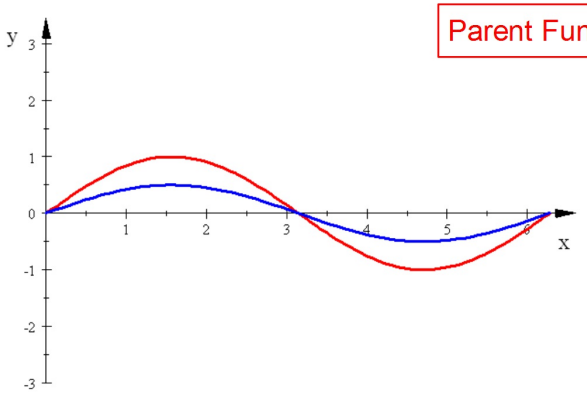


Parent Function: y = sinx

y = 2 sinx

Twice as tall

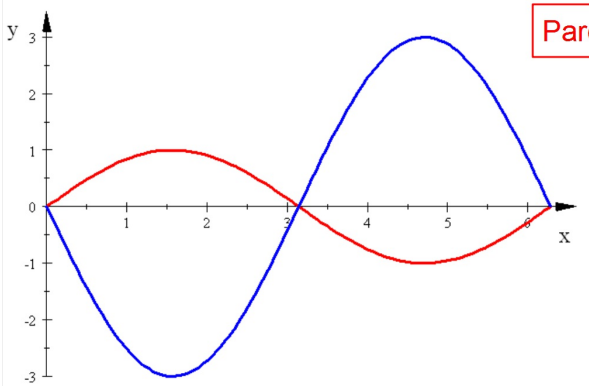
Parent Function: y = sinx



y = 0.5sinx

Half as Tall

Parent Function: y = sinx



y = -3sinx

3 times taller
and upside down

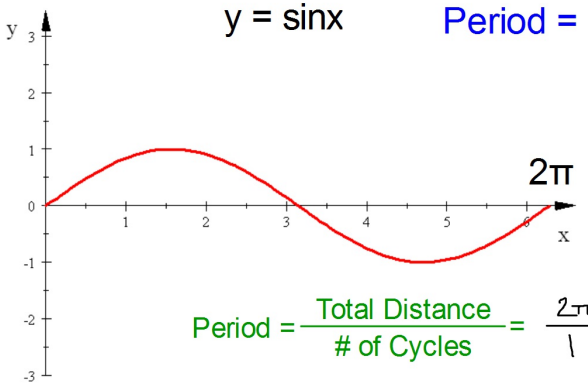
y = asinx

a = Vertical Stretch Factor ⟶ Amplitude

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

y = sinx

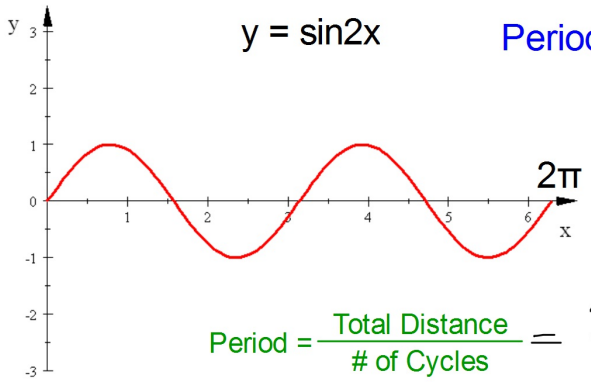
Period = 2π



$$\text{Period} = \frac{\text{Total Distance}}{\text{\# of Cycles}} = \frac{2\pi}{1} = 2\pi$$

y = sin2x

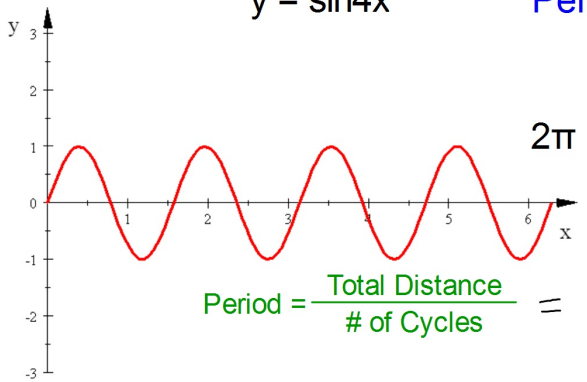
Period = π



$$\text{Period} = \frac{\text{Total Distance}}{\text{\# of Cycles}} = \frac{2\pi}{2} = \pi$$

y = sin4x

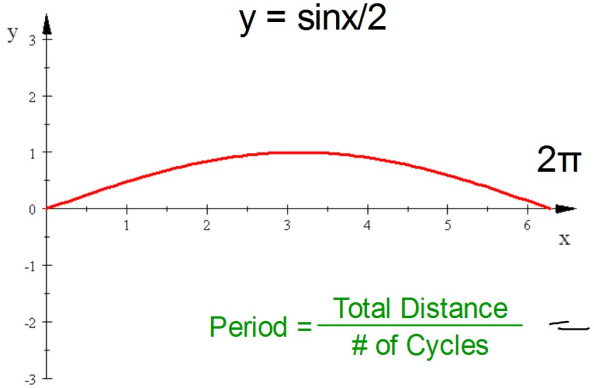
Period = $\frac{\pi}{2}$



$$\text{Period} = \frac{\text{Total Distance}}{\text{\# of Cycles}} = \frac{2\pi}{4} = \frac{\pi}{2}$$

y = sinx/2

Period = 4π



$$\text{Period} = \frac{\text{Total Distance}}{\text{\# of Cycles}} = \frac{2\pi}{1/2} = 4\pi$$

y = sinbx

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

Find the amplitude and period for each Sine Function:

1. $y = 7\sin 5x$

Amplitude= 7

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

2. $y = -4\sin\frac{x}{3}$

Amplitude= 4

Period= $\frac{2\pi}{\frac{1}{3}} = 6\pi$

$y = a\sin bx$

a = Amplitude

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

→ Period = $\frac{2\pi}{b}$