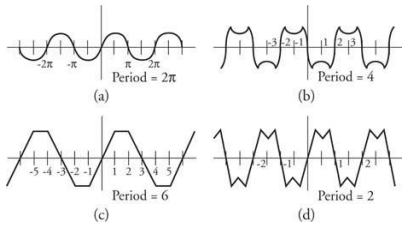
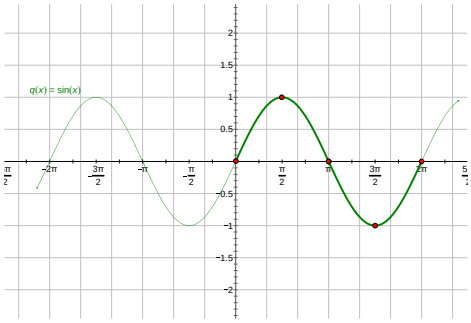
Topic	Notes	Examples/Questions
Vocab:		
Periodic Function - def	A function that is formed be repeating a section of the graph over and over.	
Amplitude - def	"***a***" The vertical distance from the center of the graph to the highest point and the center of the graph to the lowest point.	
Cycle - def	The section of the graph of a periodic function that is repeated.	
Period - def	The distance along the x-axis that is needed to graph one complete cycle of a periodic graph.	
Angular Frequency - def	"***b***" The number of complete cycles graphed between 0 and 2π radians.	
Phase Shift - def	"***h***" horizontal translation	
Vertical Translation - def	"***k***" Marks the center of the graph.	
Frequency and Period	$(period)(frequency) = 2\pi$ OR $p \cdot b = 2\pi$	
General Form of a Sinusoidal Function	$y = a\sin\big(b(x-h)\big) + k$ $y = a\cos\big(b(x-h)\big) + k$ where ***a*** is the amplitude, ***b*** is the angular frequency, ***h*** is the phase shift and ***k*** is the vertical translation.	

Parent Functions

$f(x) = \sin x$

amplitude "***a***" = 1
frequency "***b***" = 1
period = 2π
no phase shift "***h***"
no vertical translation "***k***"

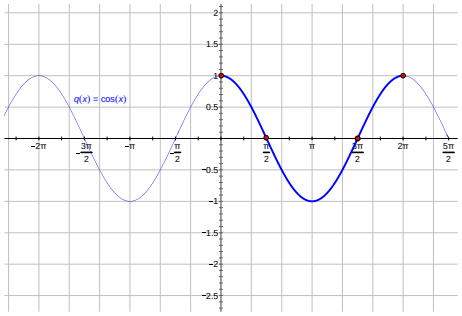
Point Pattern:
Starts in middle. Ends in middle. Halfway is the middle. Halfway is up. Halfway is down.



$f(x) = \cos x$

a = 1
b = 1
period = 2π
h = 0
k = 0

Point Pattern:
Starts at the top. Ends at the top. Halfway is at the bottom. Halfways are at the middle.



Steps for Graphing Sinusoidals (5)

1) Plot the center line "***k***"
2) Plot the amplitude from the center line — high & low "***a***"
3) Mark the starting point "***h***"
4) Use frequency ("**b"**) to find the period. Mark the period from the starting point.

—You are basically making a box for each complete cycle.—

5) Plot the point pattern for the parent function. Draw at least two complete cycles.

Example