Graphs of Sine and Cosine

6.3

1.11.16

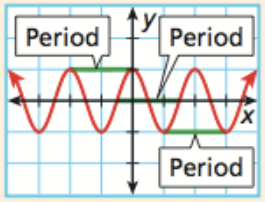
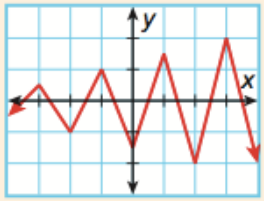
Lesson 3

Warm-up

1) A DVD with a radius of 6 cm spins at rate of 23000 revolutions per minute. Find the linear speed.

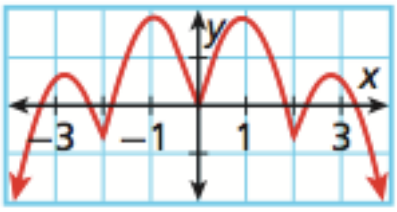
Periodic functions are functions that repeat in regular intervals called ***Cycles***.

The length of a cycle is called its ***Period***.

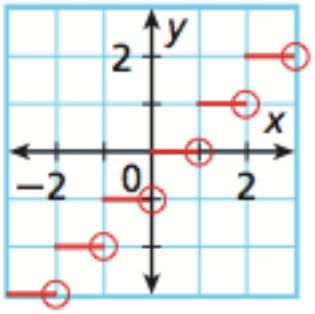
Periodic	Not Periodic
	

Which of these (if any) are periodic?

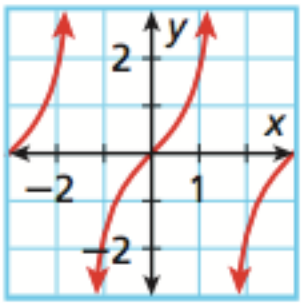
A)



B)



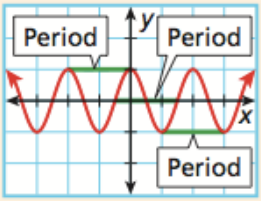
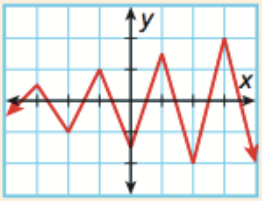
C)



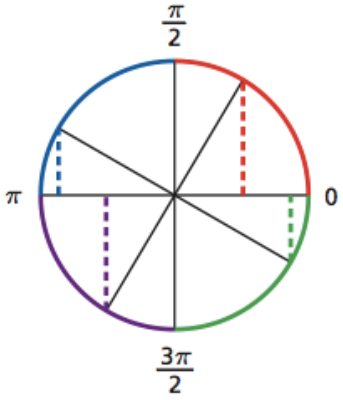
The ***Amplitude*** of cosine and sine functions is half of the difference between the

maximum and minimum values of the function. The amplitude is always positive.

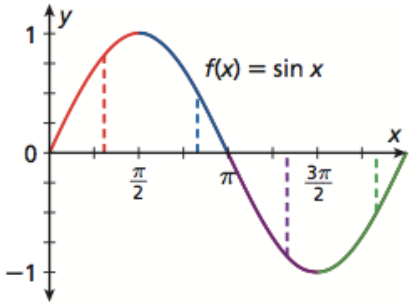
The ***Midline*** is the horizontal line that splits the graph in half vertically.

Periodic	Not Periodic
	

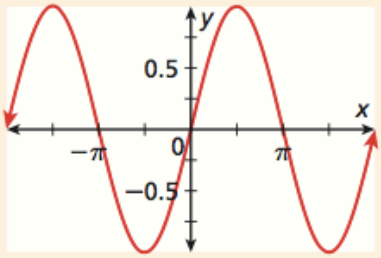
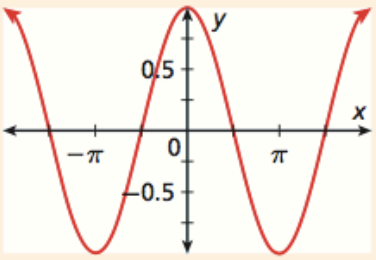
Sine and Cosine graphs are periodic!
Instead of simply using x and y to plot the coordinate, we use
$\theta\ for\ the\ x\ axis\ in\ radians, and\ sin\theta\ for\ the\ y\ a$

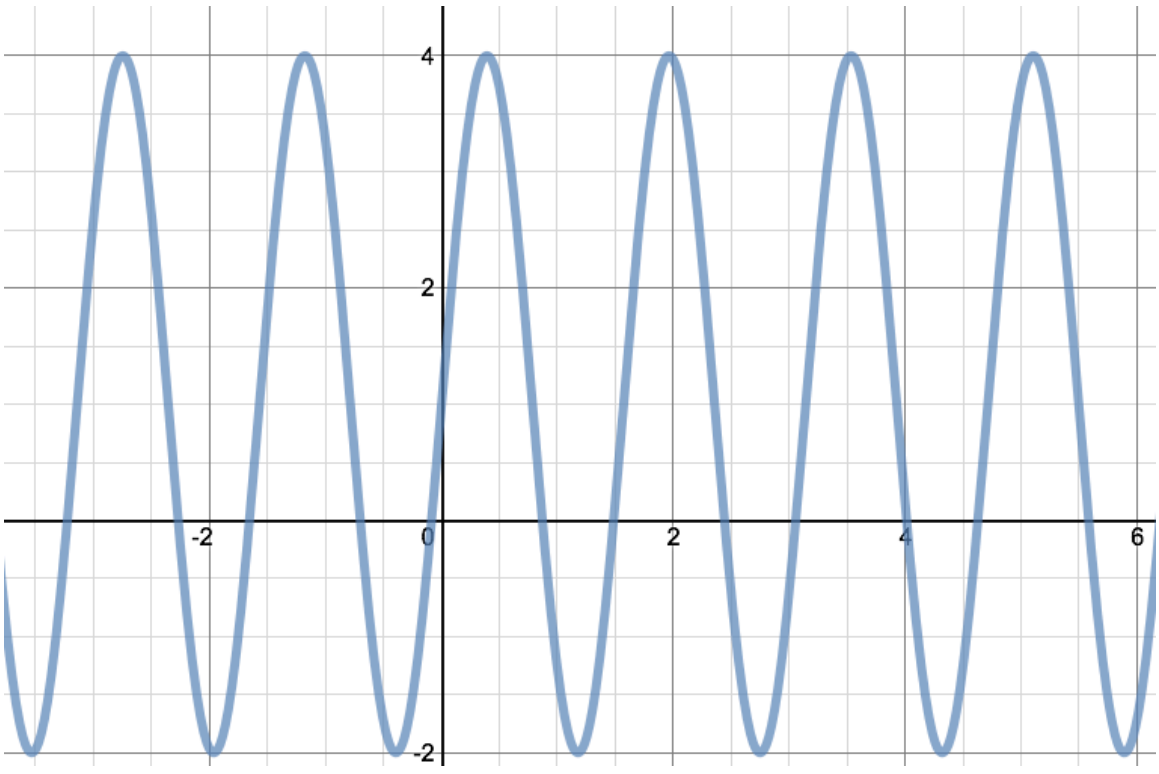


$x(=\theta)$	y
$\frac{\pi}{3}$	$\frac{\sqrt{3}}{2}$
$\frac{5\pi}{6}$	$\frac{1}{2}$
$\frac{4\pi}{3}$	$\frac{\sqrt{3}}{2}$
$\frac{11\pi}{6}$	$\frac{1}{2}$



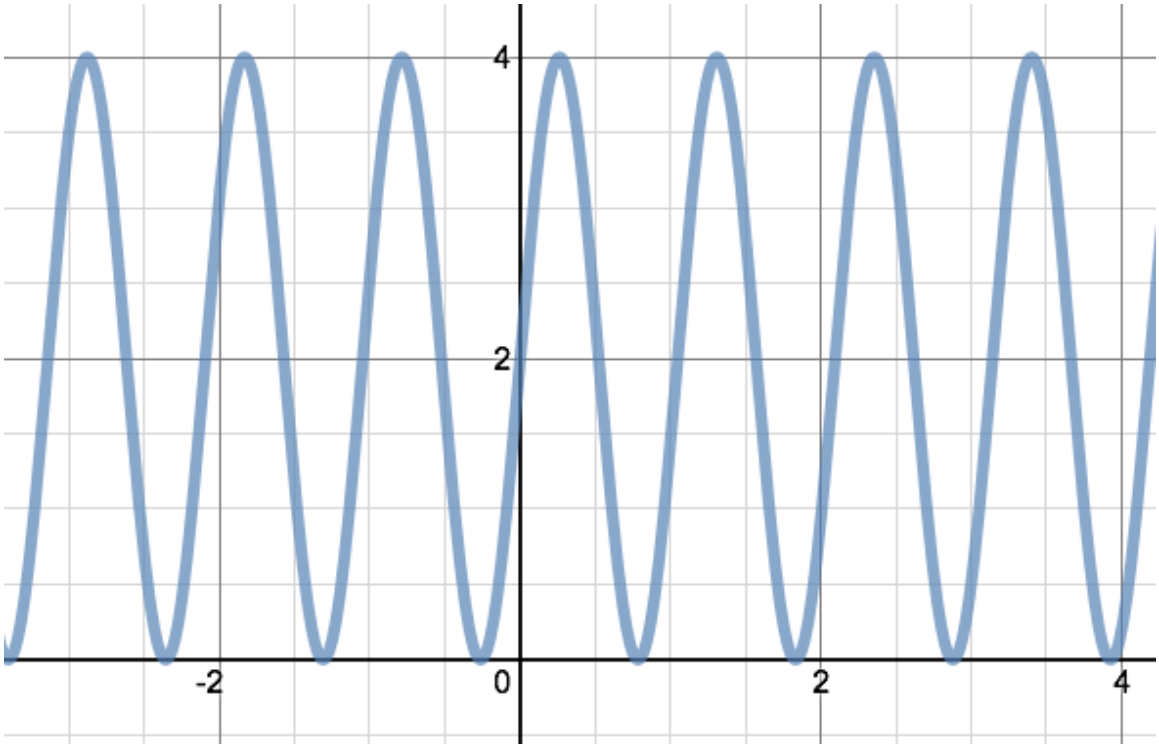
Characteristics of the Graphs of Sine and Cosine

FUNCTION	$y = \sin x$	$y = \cos x$
GRAPH		
DOMAIN	$\{x \mid x \in \mathbb{R}\}$	$\{x \mid x \in \mathbb{R}\}$
RANGE	$\{y \mid -1 \le y \le 1\}$	$\{y \mid -1 \le y \le 1\}$
PERIOD	2π	2π
AMPLITUDE	1	1



Amplitude:3
Period:2
Midline: y=1
Maximum: 4
Minimum: -2

We try:

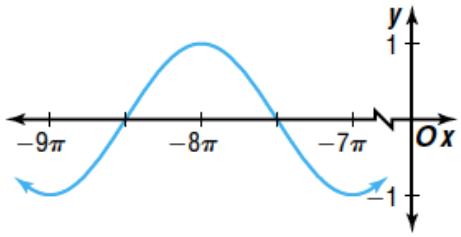


Amplitude:
Period:
Midline:

Maximum:

Minimum:

Determine whether the graph represents $y = \sin x$, $y = \cos x$, or neither.



I do:

Graph

Y= sinx , $\pi \leq x \leq 3\pi$

We do:

Graph the following sine function.

$y = \sin x, \frac{7\pi}{2} \leq x \leq \frac{11\pi}{2}$

Exit Slip

Graph

Y= sinx , $2\pi \leq x \leq 4\pi$