

# 10.1 Sine and Cosine Functions

(copy & paste)

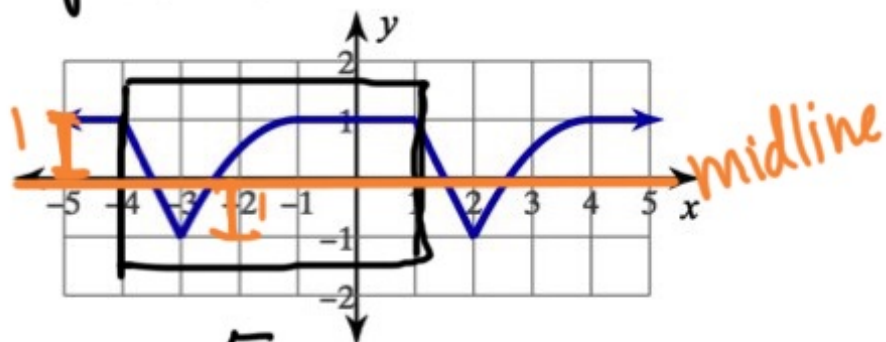
**Periodic Functions:** A function is *periodic* if the function EXACTLY repeats itself.

The **PERIOD** is how long it takes for the function to repeat. (horizontal distance)

The **MIDLINE** is a horizontal line that cuts the graph in half ( $y = \text{---}$ )

The **AMPLITUDE** is the distance from the midline to the maximum or minimum point on the graph.

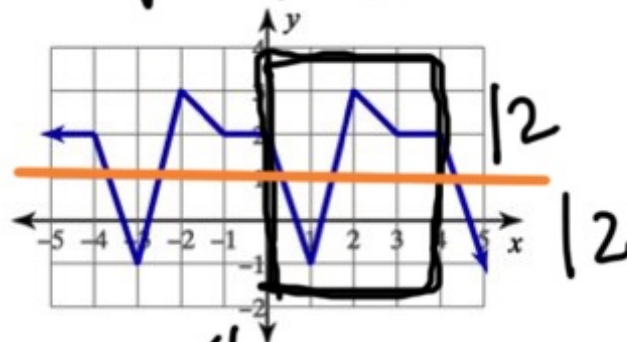
A. periodic



Period: 5

Amplitude: 1

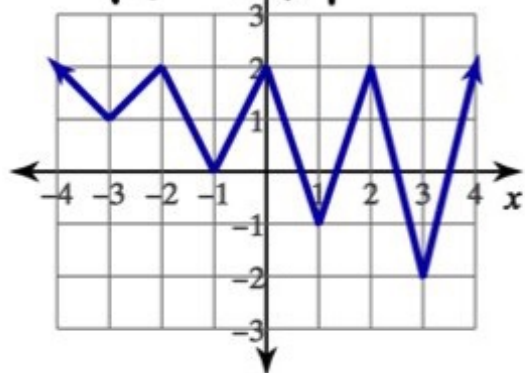
B. Periodic



Period: 4

Amplitude: 2

C. Not periodic

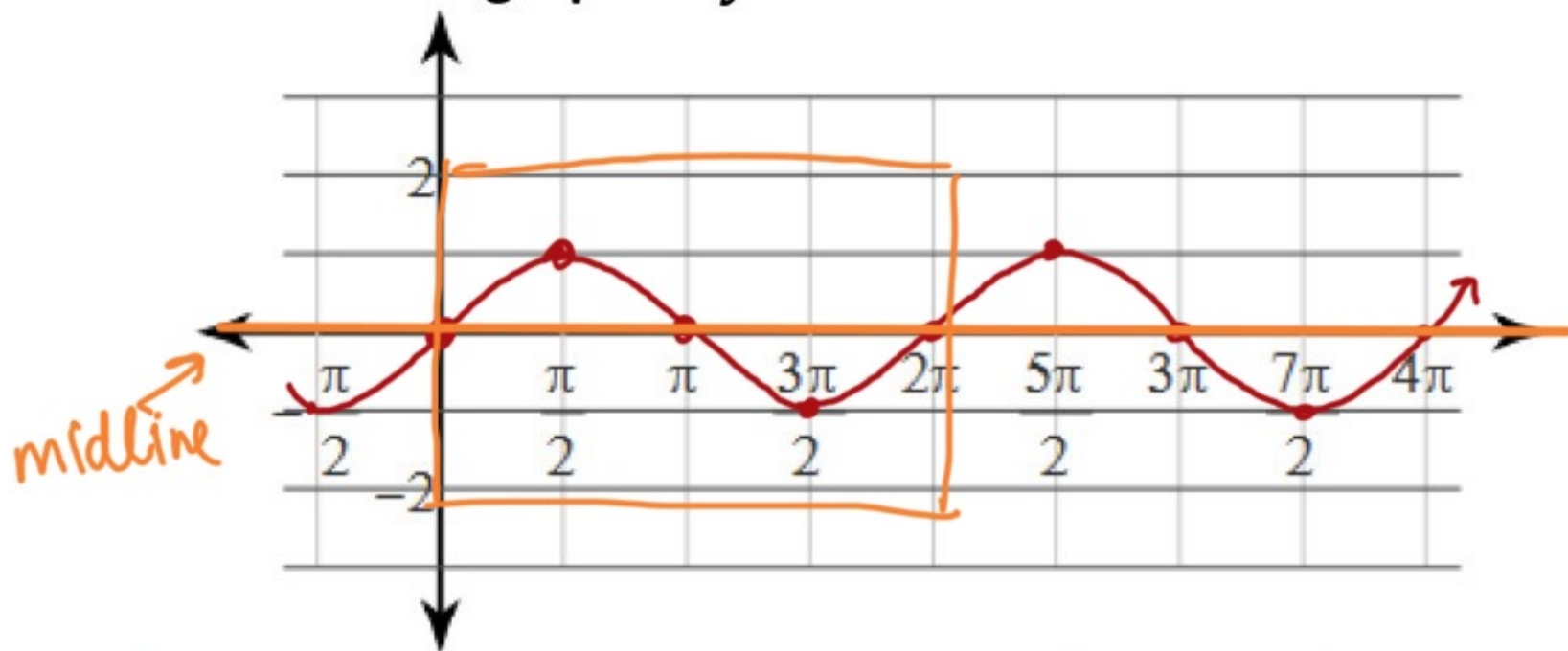


Period: \_\_\_\_\_

Amplitude: \_\_\_\_\_

Pattern  $\neq$  periodic

Sketch the graph of  $y = \sin x$ .



Period:  $2\pi$

Midline:  $y=0$

Amplitude:  $1$

Max y-value:  $1$

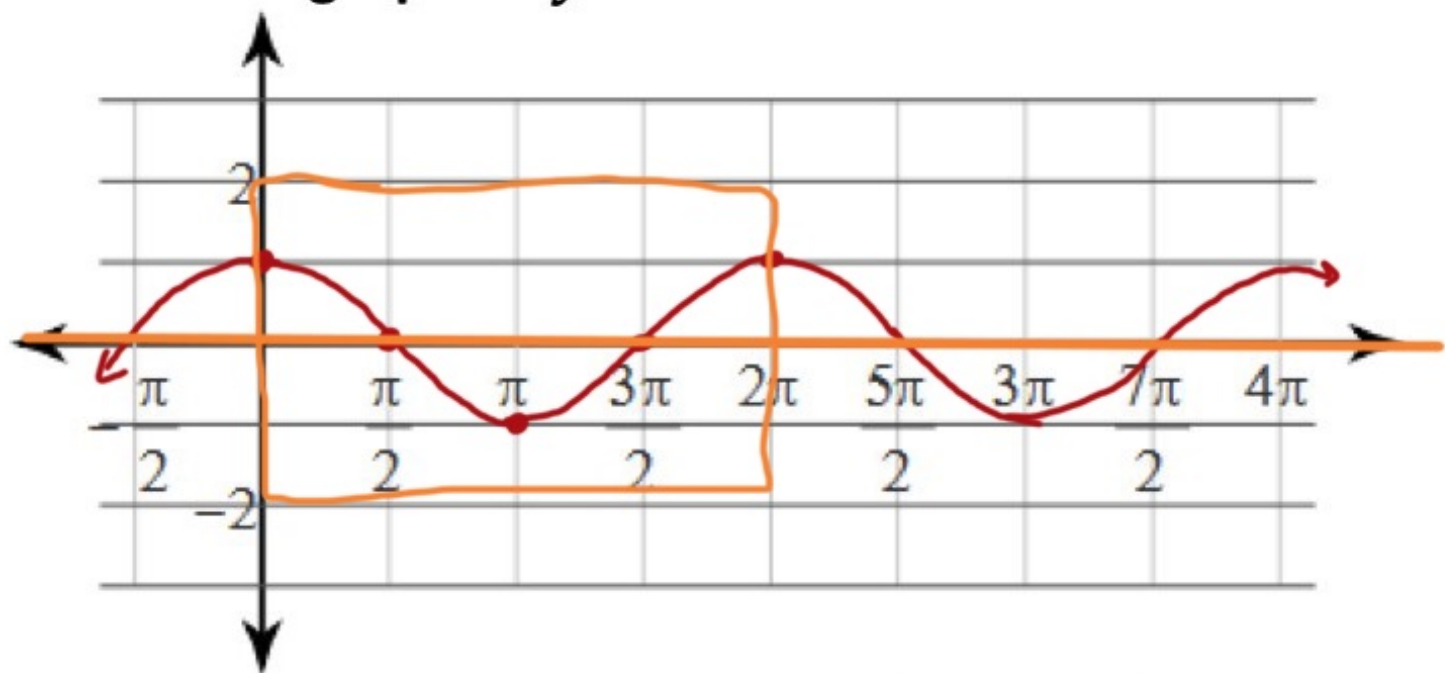
x Domain:  $(-\infty, \infty)$

y Range:  $[-1, 1]$

y-intercept:  $(0, 0)$

5 point pattern mid-top-mid-bottom-mid  
(each pt. is @  $\frac{\text{period}}{4}$ )

Sketch the graph of  $y = \cos x$ .



Period:  $2\pi$

Midline:  $y=0$

Amplitude:  $1$

Max y-value:  $1$

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

Range:  $[-1, 1]$

y-intercept:  $(0, 1)$

5 point pattern top-mid-bottom-mid-top

$(\frac{\text{period}}{4})$