Alg 2   Hwk #5   Sec 13-1

Periodic function: A repeating pattern of y-values at regular intervals.

Terms used when discussing periodic functions:

Cycle: the smallest portion of the graph that can be
        repeated to create the entire graph.
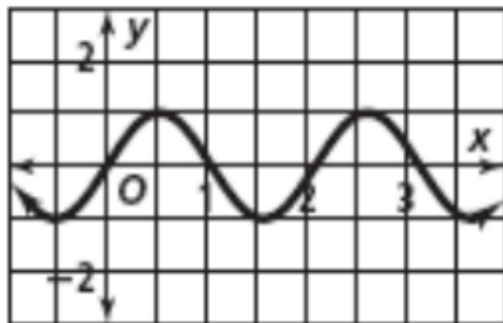
Period: The width of one cycle (x-values)

Axis (also called the Midline): The horizontal line
that passes through the middle of the graph.

$$y =$$

Amplitude: The vertical distance from the midline
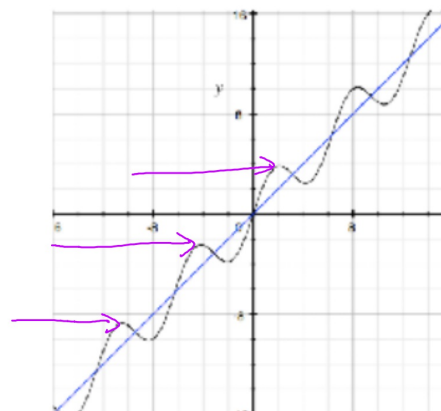to either the maximum or the minimum.

1. Is each of the below a periodic function? If no, explain why.
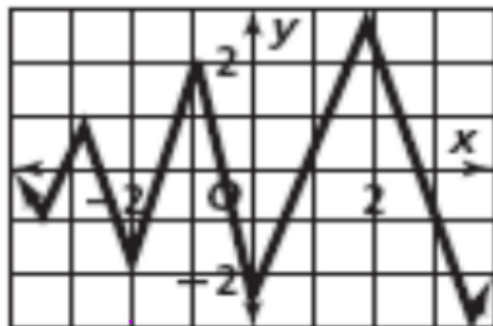
A

Yes, this is periodic.

B

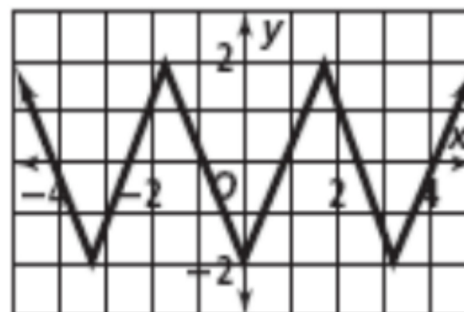Not Periodic

y-values don't repeat, they keep
increasing.

C

D
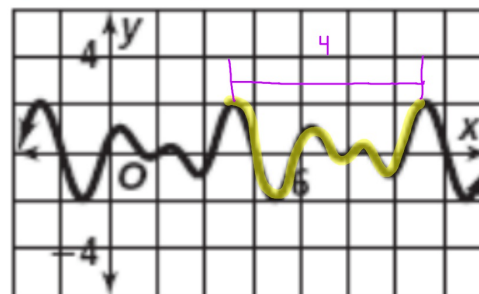
Yes, this is periodic

If you can't tell by looking at the graph, this is how you find the Midline and Amplitude mathematically.

Midline (Axis): $y = \dfrac{Max + Min}{2}$

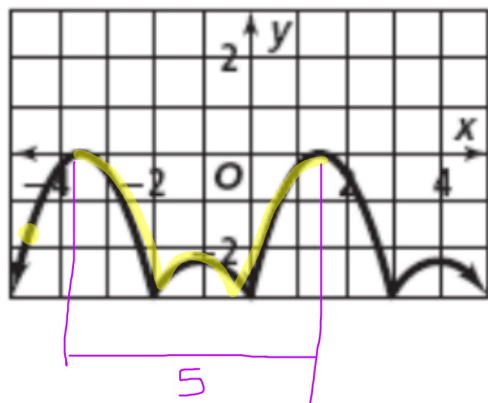Amplitude $= \dfrac{Max - Min}{2}$ = half the total height

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2. Highlight one cycle of each periodic function and find its period.
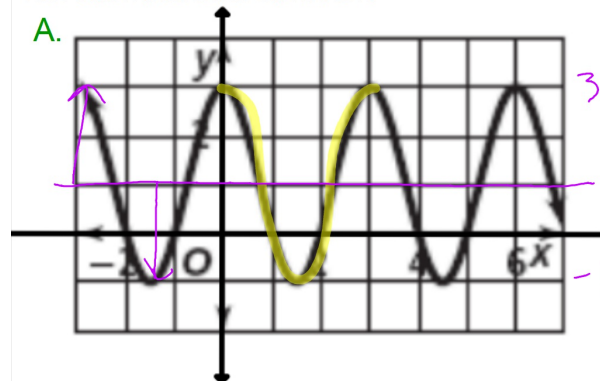
a.

Period = 4

b.

Period = 5

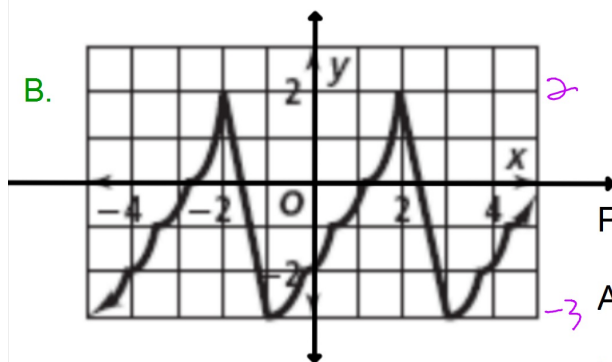3. Find the period, amplitude, and the equation of the axis for each periodic function.

A.

Period = 3

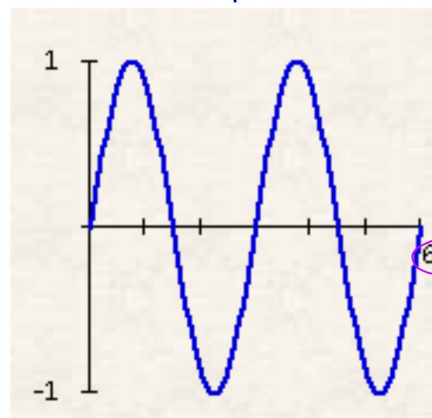Amplitude = $\frac{3--1}{2}$
$= 2$

EQ of Axis:
$y = \frac{3 + -1}{2} = \frac{2}{2}$
$y = 1$

B.

Period = 4

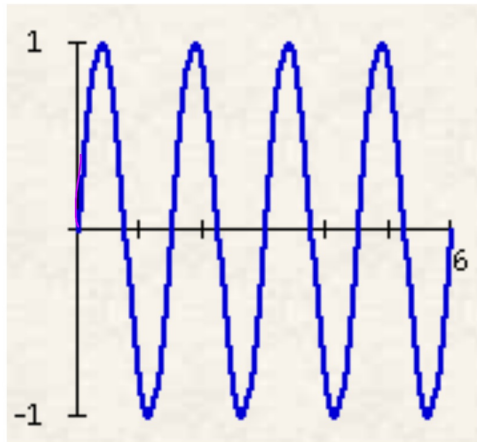Amplitude = $\frac{5}{2} = 2.5$

EQ of Axis: $\frac{2 + -3}{2}$
$y = -.5$

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4. What is the period of each function?

A. Period = $\frac{6}{2} = 3$

2 cycles from 0 to 6

B. Period = $\dfrac{6}{4} = 1.5$

4 cycles from 0 to 6