

Identifying Periods and Cycles Notes

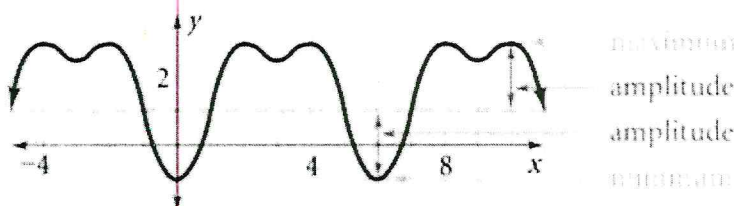
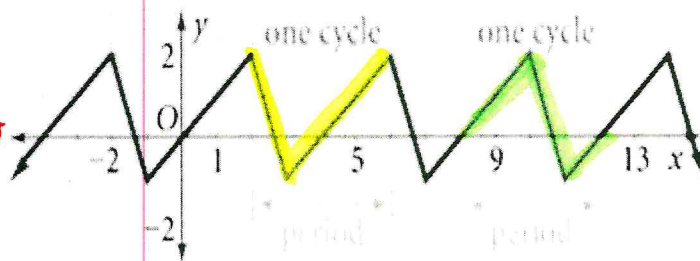
DEFINITIONS:

- Periodic Function: A function that repeats a pattern of y -values at regular intervals.

- Cycle: One complete "pattern"

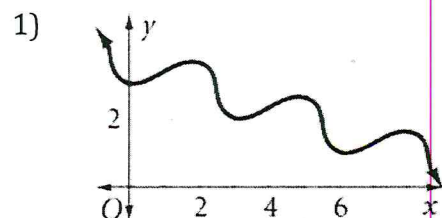
- Period: The horizontal length of one cycle.

- Amplitude: Distance from the max or min to the midline of the function.

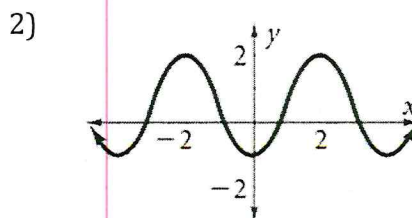


Examples

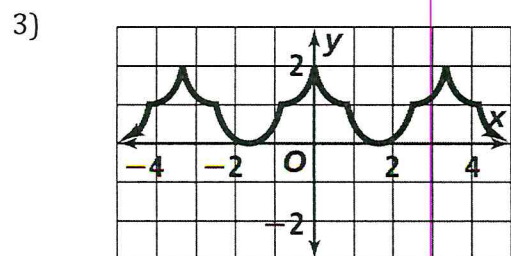
DIRECTIONS: Determine if the following graphs represent periodic functions. Be able to explain why or why not.



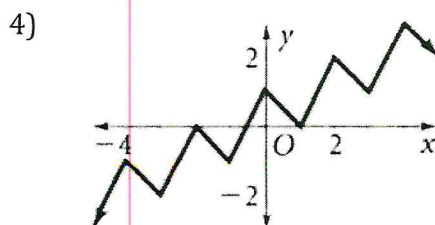
No! The "height" of the graph is changing.



Yes!



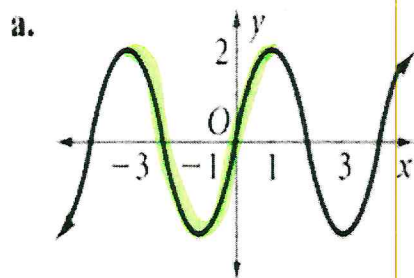
Yes!



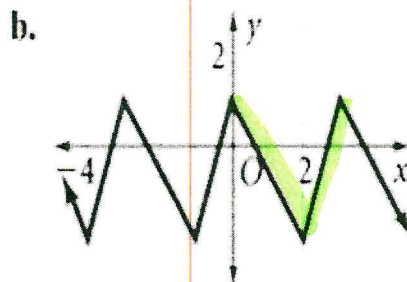
No! The "height" of the graph is changing.

Identifying the period of a periodic function:

For the following periodic graphs identify one cycle and the period.



$$\text{Period} = 1 - (-3) = \boxed{4}$$

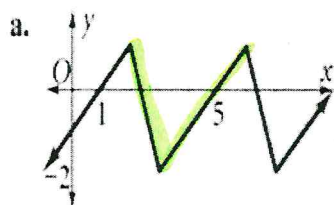


$$\text{Period} = 3 - 0 = \boxed{3}$$

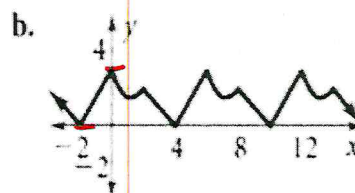
Calculating amplitude of a periodic function:

$$\text{Amplitude} = \frac{1}{2} (\text{max} - \text{min})$$

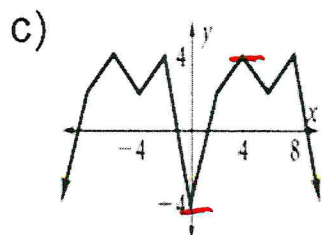
Use the graphs below to determine the amplitude of the following periodic functions.



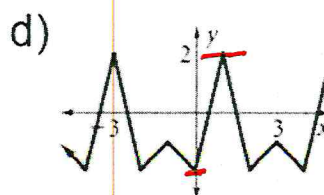
$$a = \frac{1}{2} (1 - (-2)) = \frac{1}{2} (3) = \boxed{\frac{3}{2}}$$



$$a = \frac{1}{2} (3 - 0) = \frac{1}{2} (3) = \frac{3}{2}$$



$$a = \frac{1}{2} (4 - (-4)) = \frac{1}{2} (8) = \boxed{4}$$



$$a = \frac{1}{2} (2 - (-2)) = \frac{1}{2} (4) = \boxed{2}$$