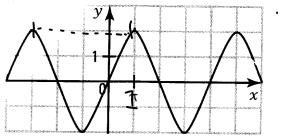
PERIODIC FUNCTIONS

A periodic function is a function that repeats its values in regular intervals or periods.

so:

Think of a swing (the movement), the seat follows the same trajectory over and over

rule: f(x) = f(x + a)



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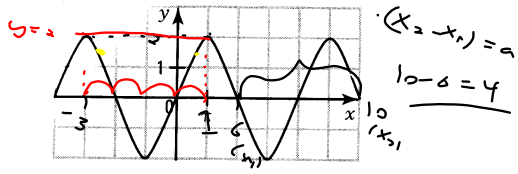
rule: f(x) = f(x + a)

This means the y value at a given x value equals the y value at (x + a).

(where a is the period)

ex: adding the period to any x value lands you in the same place.



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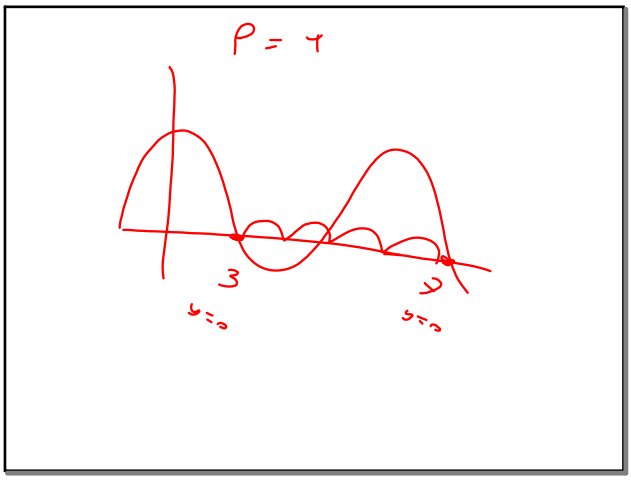

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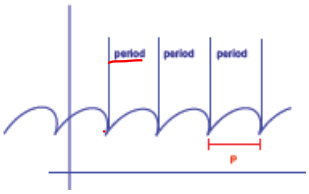

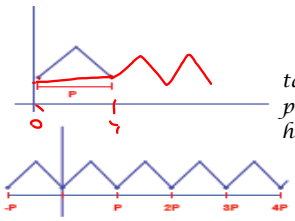

take the initial period and slide it horizontally

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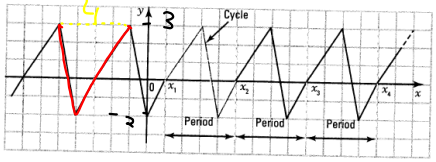
A cycle: smallest portion of the graph that repeats itself.

The period: the distance between the extremities of one cycle.

The frequency: the reciprocal of the period $F = \frac{1}{P}$



In a situation where the variable x represents the time, the period represents the duration of one cycle and the frequency represents the number of cycles per unit of time.

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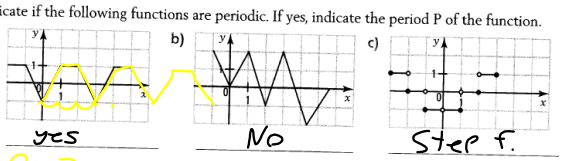
Indicate if the following functions are periodic. If yes, indicate the period P of the function.

a) b) c)



P = 3

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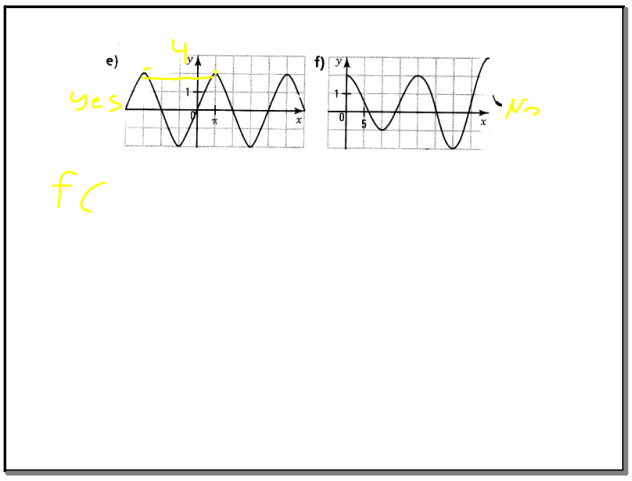

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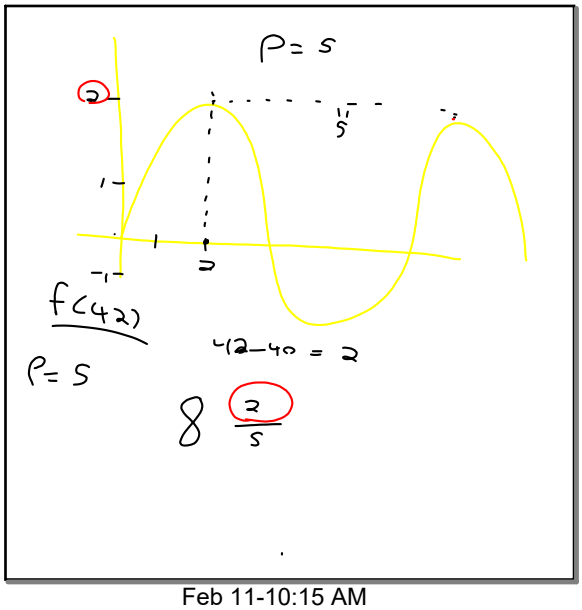

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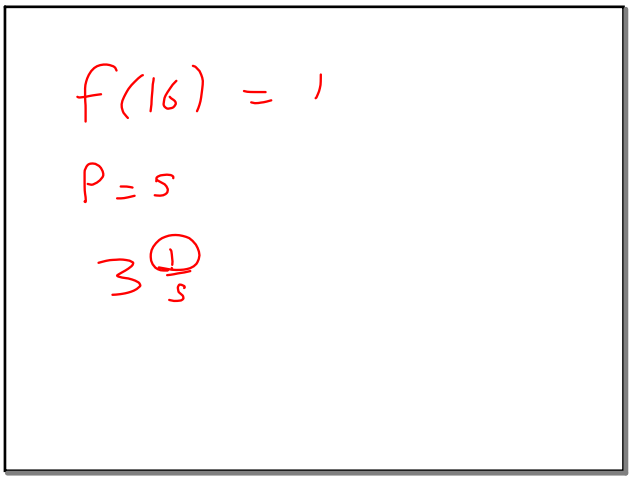

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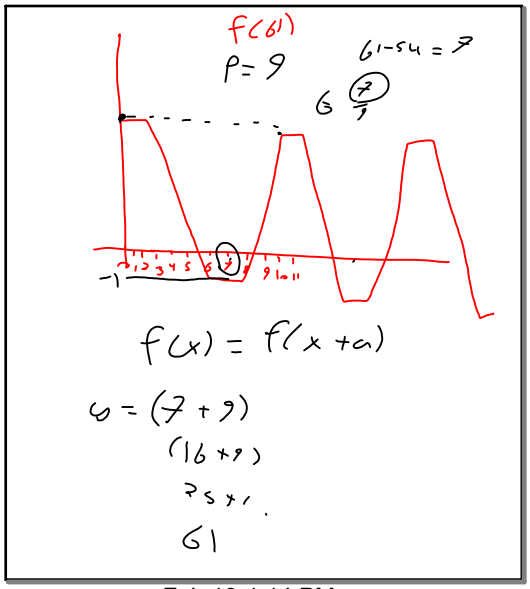

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