Amplitude:

Half the total height or $\frac{\text{Max - Min}}{2}$

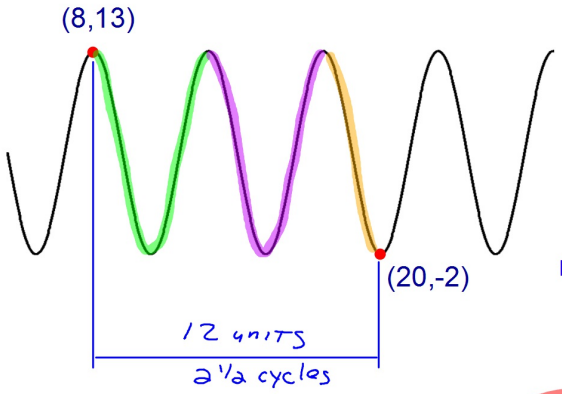
Equation of the Midline:

Horizontal line through the middle of the graph

$y = \frac{\text{Max + Min}}{2}$

Period: width of one cycle

$\text{Period} = \frac{\text{distance between any two points on the graph}}{\text{\# of cycles between those same points}}$



Amplitude = 7.5 or $\frac{15}{2}$

$\frac{13 - -2}{2} = \frac{15}{2}$

Eq of Midline : $y = \frac{11}{2}$ or $y = 5.5$

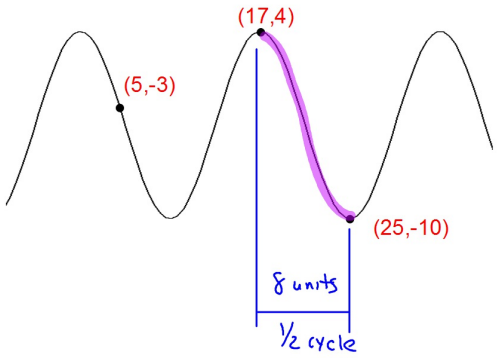
$y = \frac{13 + -2}{2}$

Period = $\frac{12}{2\frac{1}{2}}$

$= \frac{12}{\frac{5}{2}} = 12 \cdot \frac{2}{5}$

Period = $\frac{24}{5}$

Find the amplitude, period, and equation of the midline.



Amplitude = 7

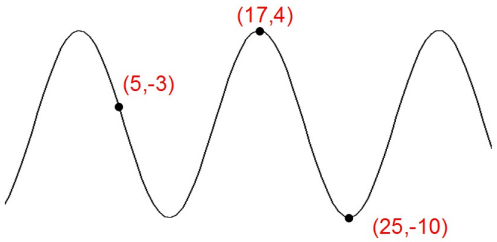
$\frac{4 - -10}{2} = \frac{14}{2}$

Eq of Midline : $y = -3$

$\frac{4 + -10}{2} = \frac{-6}{2}$

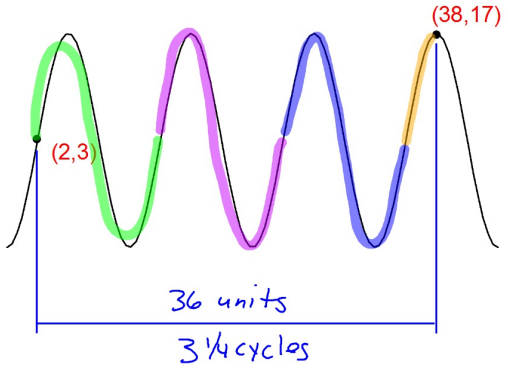
Period = $\frac{8}{\frac{1}{2}} = 8 \cdot \frac{2}{1}$

Period = 16



The points you will be given will either be maximums, minimums, or points that are exactly in the middle. Thus, The point (5,-3) must be in the middle. This makes finding the midline easier:
it's simply y = -3
(the y-coord of the "middle" point)

Given a "middle" point gives you another option when finding the amplitude. Amplitude is the distance from the middle to either a max or a min.



Amplitude = 14
17 − 3 = 14

Eq of Midline : y = 3

Period = $\frac{36}{3\frac{1}{4}} = \frac{36}{\frac{13}{4}}$

$= 36 \cdot \frac{4}{13}$

Period = $\frac{144}{13}$

Suppose f is a periodic function with a period of 10

Given f(12)=23 and f(51) = 2

this is the point (12, 23)

this is the point (51,2)

A period is how often y-values repeat. In this problem every 10 units from any point will result in the same y-value.

Find f(32)

This asks for the y-coord of the point when x=32.

x=32 is 20 units from x=12. That means this point is 2 periods to the right of (12,23). Therefore, this when x=32 you will get the same y-value as the point (12,23).

f(32) = 23

Find f(41)

This asks for the y-coord of the point when x=41.

x=41 is 10 units from x=51. That means this point is 1 periods to the left of (51,2). Therefore, this when x=41 you will get the same y-value as the point (51,2).

f(41) = 2

You can now finish Hwk # 14 Sec 13-1

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Problems 5-8, 11, 12, 20, 21, 23, 24, 32

DON'T copy and sketch two more cycles

Due tomorrow