Amplitude:

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

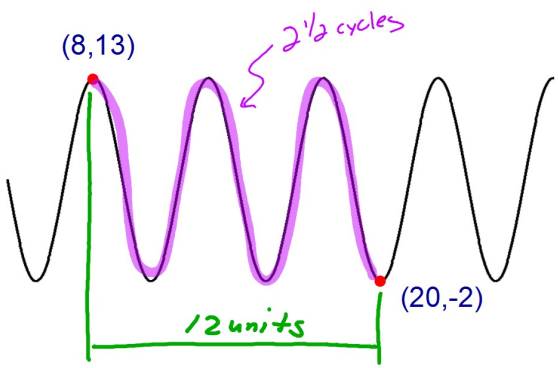
Equation of the Midline:

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

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

Eq of Midline : $y = 5.5$

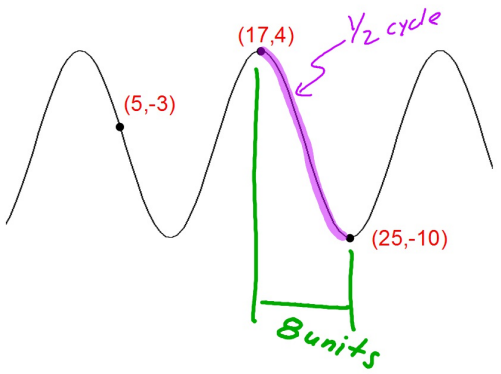
$y = \frac{13 + -2}{2} = \frac{11}{2}$

Period = $\frac{12 \text{ units}}{2\frac{1}{2} \text{ cycles}}$

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

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

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



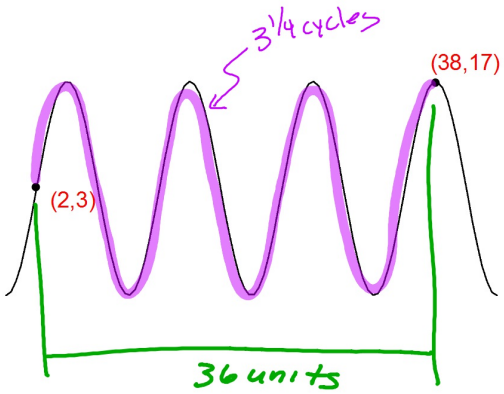
Amplitude = 7

$4 - -3 = 7$

Eq of Midline : $y = -3$

Period = $\frac{8 \text{units}}{\frac{1}{2} \text{ cycle}} = 8 \cdot \frac{2}{1}$

period = 16



Amplitude = 14

17 − 3 = 14

Eq of Midline : $y = 3$

Period = $\frac{36 \text{ units}}{3\frac{1}{4} \text{ cycles}}$

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

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

Suppose f is a periodic function with a period of 20

Given f(36) = 4 and f(49) = 17

(36, 4) (49, 17)

A period is how often y-values repeat. In this problem every 20 units from any point will result in the same y-value.

Find f(89)

(89, ?)

89 is 40 units to the right of 49, therefore (89,?) is 2 periods to the right of (49,17) which means that they must have the same y-coordinate.

Find f(89) = 17

Find f(-44)

(-44, ?)

-44 is 80 units to the left of 49, therefore (-44,?) is 4 periods to the left of (36,4) which means that they must have the same y-coordinate.

Find f(-44) = 4

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