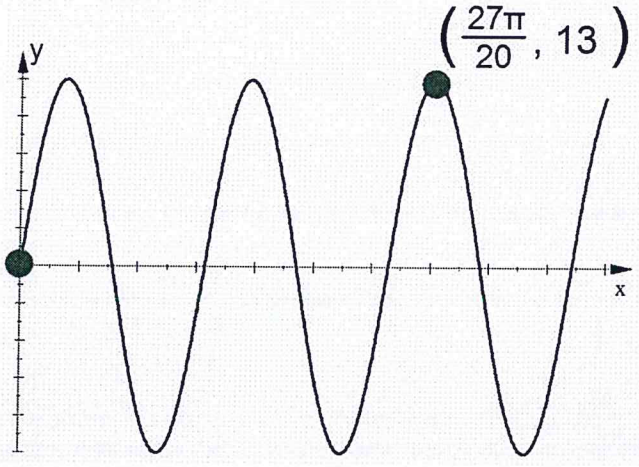
Bellwork Alg 2 Thursday, April 18, 2019

Sketch one period of each Sine function. Label the coordinates of all minimums, maximums, and points on the midline.

1. $y = -20 \sin \frac{18x}{23}$

2. $y = 4 \sin 5x + 1$

3. Find the amplitude and period. Use these to find the values of a and b so that you can write the equation of this graph in the form $y = a \sin bx$. Remember, $b = \frac{2\pi}{Period}$.



Bellwork Alg 2 Thursday, April 18, 2019 ANSWERS

Sketch one period of each Sine function. Label the coordinates of all minimums, maximums, and points on the midline.

1. $y = -20\sin\frac{18x}{23}$

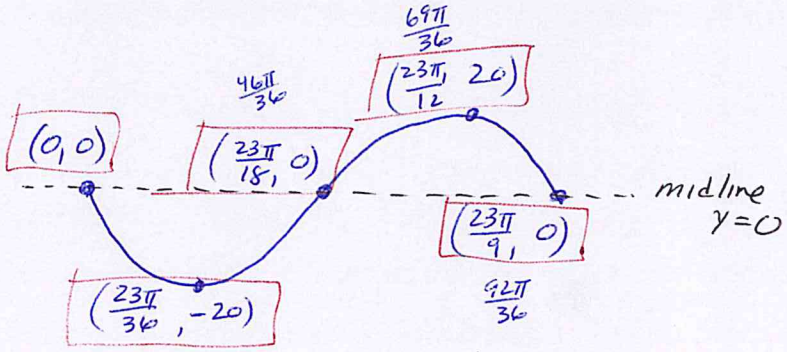
Amplitude = 20

upside down

period = $\frac{2\pi}{18/23}$

$= 2\pi \cdot \frac{23}{18}$

$= \frac{23\pi}{9}$ → $\frac{1}{4}$ period = $\frac{23\pi}{9} \cdot \frac{1}{4} = \frac{23\pi}{36}$



2. $y = 4\sin 5x + 1$

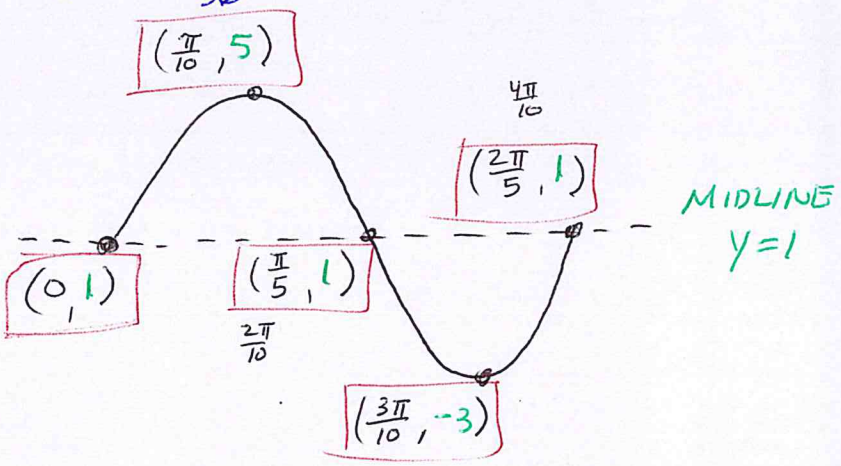
Amplitude = 4

NOT upside down

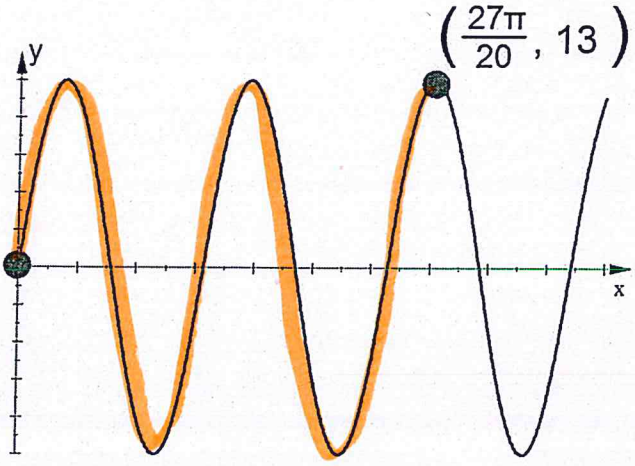
period = $\frac{2\pi}{5}$ $\frac{1}{4}$ period: $\frac{2\pi}{5} \cdot \frac{1}{4} = \frac{\pi}{10}$

Vertical shift 1 unit up

MIDLINE: y = 1



3. Find the amplitude and period. Use these to find the values of a and b so that you can write the equation of this graph in the form $y = a\sin bx$. Remember, $b = \frac{2\pi}{Period}$.



2 1/4 cycles

period = $\frac{\frac{27\pi}{20}}{2\frac{1}{4}} = \frac{\frac{27\pi}{20}}{\frac{9}{4}} = \frac{27\pi}{20} \cdot \frac{4}{9} = \frac{3\pi}{5}$

Amplitude = 13

NOT upside down

a = 13

mid line: y = 0 No vertical shift

$y = 13\sin\frac{10}{3}x$ or $13\sin\frac{10x}{3}$

$b = \frac{2\pi}{period} = \frac{2\pi}{\frac{3\pi}{5}} = 2\pi \cdot \frac{5}{3\pi}$

$b = \frac{10}{3}$