Using $y = a\sin bx$

1. To find find the value of a on a given graph all you need to know is the amplitude.

2. If the cycle in your graph starts on the midline and goes up to a maximum a is Positive

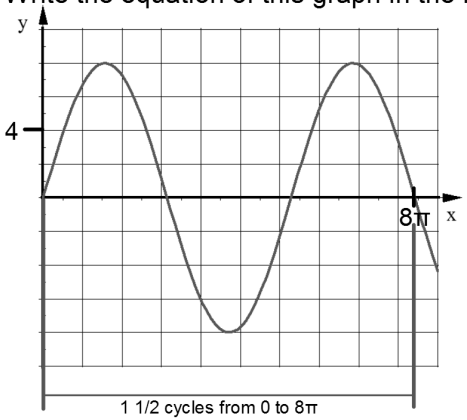
3. If the cycle in your graph starts on the midline and goes down to a minimum a is Negative

Using $y = a\sin bx$ Period $= \frac{2\pi}{b}$

Solving for b you get: $b = \frac{2\pi}{\text{Period}}$

Therefore, to find the value of b given a graph all you need to know is the period.

Find the Amplitude and Period then figure out the values of a and b.
Write the equation of this graph in the form $y = a\sin bx$



Amplitude = 8
graph Not Upside down

$a = 8$

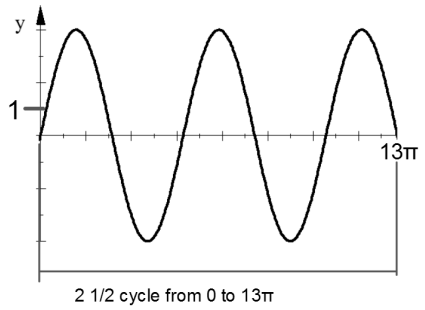
$b = \frac{2\pi}{\text{Period}} = \frac{2\pi}{\frac{16\pi}{3}} = 2\pi \cdot \frac{3}{16\pi}$

$b = \frac{3}{8}$

EQ: $y = 8\sin\frac{3x}{8}$

Period $= \frac{8\pi}{\frac{3}{2}} = 8\pi \cdot \frac{2}{3} = \frac{16\pi}{3}$

Find the Amplitude and Period then figure out the values of a and b.
Write the equation of this graph in the form $y = a\sin bx$



Amplitude = 4
graph Not upside down

$a = 4$

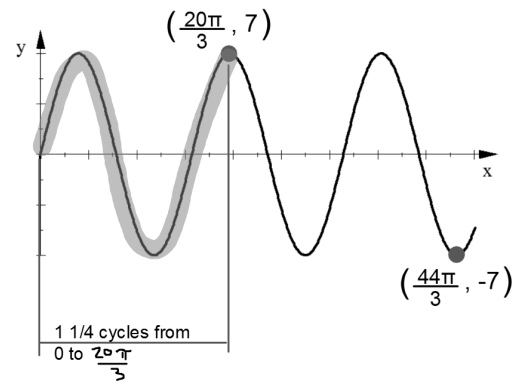
$b = \frac{2\pi}{\text{Period}} = \frac{2\pi}{\frac{26\pi}{5}} = 2\pi \cdot \frac{5}{26\pi}$

$b = \frac{5}{13}$

EQ: $y = 4\sin\frac{5x}{13}$

Period $= \frac{13\pi}{\frac{5}{2}} = 13\pi \cdot \frac{2}{5} = \frac{26\pi}{5}$

Find the Amplitude and Period then figure out the values of a and b.
Write the equation of this graph in the form y = aSinbx



Amplitude = 7
graph is NOT upside down

a= 7

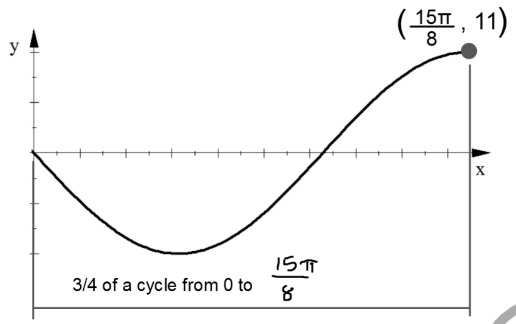
$b= \frac{2\pi}{\text{Period}} = \frac{2\pi}{\frac{16\pi}{3}} = 2\pi \cdot \frac{3}{16\pi}$

$b= \frac{3}{8}$

EQ: $y = 7 \sin \frac{3x}{8}$

Period = $\frac{\frac{20\pi}{3}}{\frac{5}{4}} = \frac{20\pi}{3} \cdot \frac{4}{5} = \frac{16\pi}{3}$

Find the Amplitude and Period then figure out the values of a and b.
Write the equation of this graph in the form y = aSinbx



Amplitude = 11
graph is Upside Down

a= −11

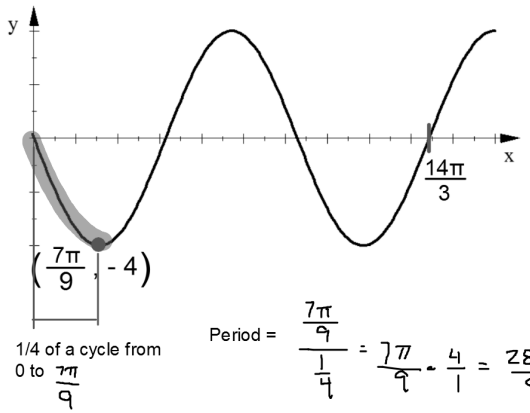
$b= \frac{2\pi}{\text{Period}} = \frac{2\pi}{\frac{5\pi}{2}} = 2\pi \cdot \frac{2}{5\pi}$

$b= \frac{4}{5}$

EQ: $y = -11 \sin \frac{4x}{5}$

Period = $\frac{\frac{15\pi}{8}}{\frac{3}{4}} = \frac{15\pi}{8} \cdot \frac{4}{3} = \frac{5\pi}{2}$

Find the Amplitude and Period then figure out the values of a and b.
Write the equation of this graph in the form y = aSinbx



Amplitude = 4
Graph is Upside Down

a= −4

$b= \frac{2\pi}{\text{Period}} = \frac{2\pi}{\frac{28\pi}{9}} = 2\pi \cdot \frac{9}{28\pi}$

$b= \frac{9}{14}$

EQ: $y = -4 \sin \frac{9x}{14}$

Period = $\frac{\frac{7\pi}{9}}{\frac{1}{4}} = \frac{7\pi}{9} \cdot \frac{4}{1} = \frac{28\pi}{9}$

You can now finish Hwk #18 Sec 13-4

Page 738

Problems 13, 14, 22, 23, 27, 31, 32, 42

for #'s 22, 23, 27 label the coordinates of ALL Max's, Min's, and x-int

Due Monday