Algebra 2 The Graph of $y = a\sin bx$ Sec 13-4 Spring 2016

Use a graphing calculator to explore the characteristics of $y = a\sin x$

Use the following WINDOW: $x : [0, 2\pi]$ $y : [-3, 3]$

Make sure your calculator is in RADIAN MODE

Part 1 Graph of $y = a\sin x$

Graph $Y_1 = \sin x$ (make this graph darker). Then graph in Y_2 each of the following. Describe how the new graph is different from $y = \sin x$.

1. Graph $Y_2 = 3\sin x$

2. Graph $Y_2 = 2\sin x$

3. Graph $Y_2 = \frac{1}{2}\sin x$

4. Graph $Y_2 = -3\sin x$

Describe how the value of a affects the graph of $y = a\sin x$.

Part 2 Graph of $y = \sin bx$ Use the same WINDOW at Part 1.

Graph the following equations one at a time in Y_1 then find the period.

1. $Y_1 = \sin x$ Period=

2. $Y_1 = \sin 2x$ Period=

3. $Y_1 = \sin(4x)$ Period=

4. $Y_1 = \sin\left(\frac{x}{2}\right)$ Period=

Describe how the value of b affects the period of $y = \sin bx$

Part 3 Without graphing find the amplitude and period for each Sine Function:

1. $y = 7\sin 5x$

Amplitude=

Period=

2. $y = -4\sin\frac{x}{3}$

Amplitude=

Period=