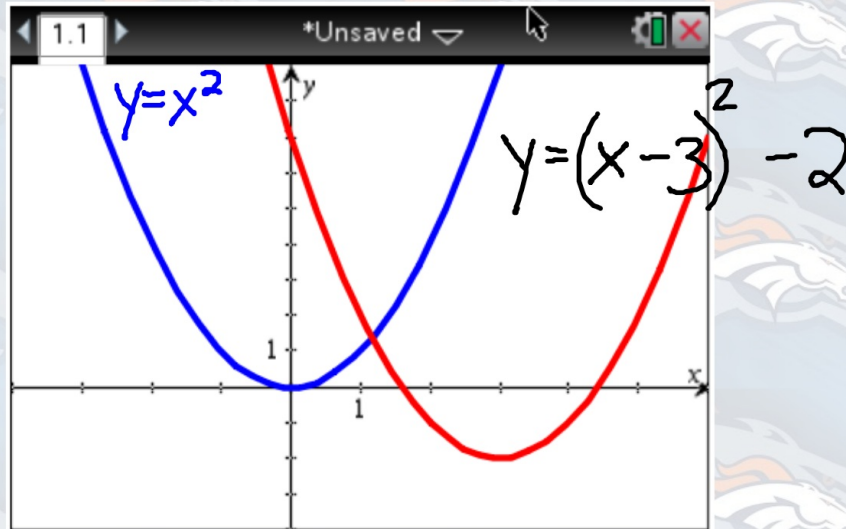


September 23

How would you change the equation of the graph of  $y = x^2$  (the blue graph) to match the equation for the red graph?



September 23

Students will verbally explain how to graph sine and cosine functions (using the words: range, right triangles, periodic...)

☺ Converting between degrees and radians

☺ Unit Circle questions

☺ Graphs of Sine and Cosine

(w/ amplitude & vertical shifts)

b. When  $b = 1$ , what is the length of one cycle of  $\sin(x)$ ? \_\_\_\_\_

c. When  $b = 2$ , what is the length of one cycle of  $\sin(x)$ ? \_\_\_\_\_

d. When  $b = 0.5$ , what is the length of one cycle of  $\sin(x)$ ? \_\_\_\_\_

e. How can you find the length of one cycle if you know  $b$ ?

$$\frac{2\pi}{b} = \left(\frac{2}{b}\right)\pi$$

4

 $C + b$ b. If  $b = 1$  and  $c = 1$ , what is the horizontal shift of the graph? $-1$  1 (left)c. If  $b = 1$  and  $c = 2$ , what is the horizontal shift of the graph? $-2$ d. If  $b = 2$  and  $c = 1$  what is the horizontal shift of the graph? $-.5 = -\frac{1}{2}$ e. If  $b = 2$  and  $c = 2$ , what is the horizontal shift of the graph? $-1$ f. If  $b = 0.5$  and  $c = 1$ , what is the horizontal shift of the graph? $-2$ g. If  $b = 0.5$  and  $c = 2$ , what is the horizontal shift of the graph? $-4$ 

h. Complete the following statement:

For  $a \neq 0$  and  $b > 0$ , the graph of  $f(x) = a \sin(bx + c) + d$  has a horizontal shift of $-\frac{c}{b}$ 

$$f(x - h) + K$$

5. For functions of the form  $f(x) = a \sin(bx + c) + d$  or  $g(x) = a \cos(bx + c) + d$ , with  $a \neq 0$  and  $b > 0$ ,

a. the amplitude is  $a$ .b. the period is  $\frac{2\pi}{b}$  (length of one cycle)c. the horizontal shift is  $-\frac{c}{b}$ .d. the vertical shift is  $d$ .