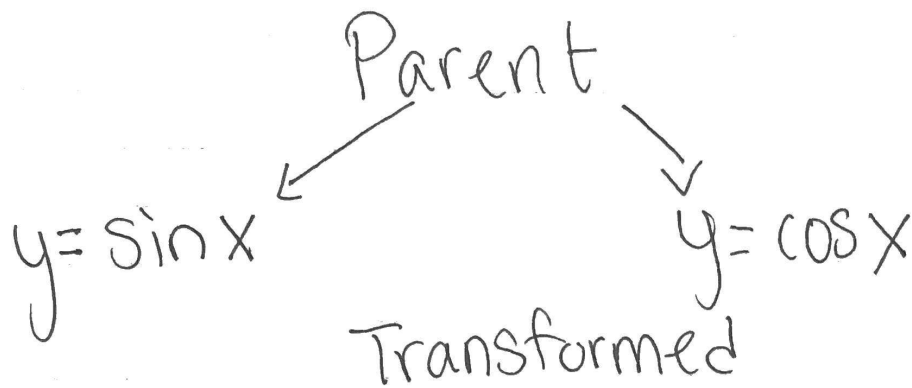


How does  $a$ ,  $h$ , and  $k$  affect the parent graphs?

3/10/17



$$y = a \sin(bx - h) + k$$

$$y = a \cos(bx - h) + k$$

$a$  = amplitude, changes the graph by stretch or compressing

★  $h$  = shifts the graph horizontally ★

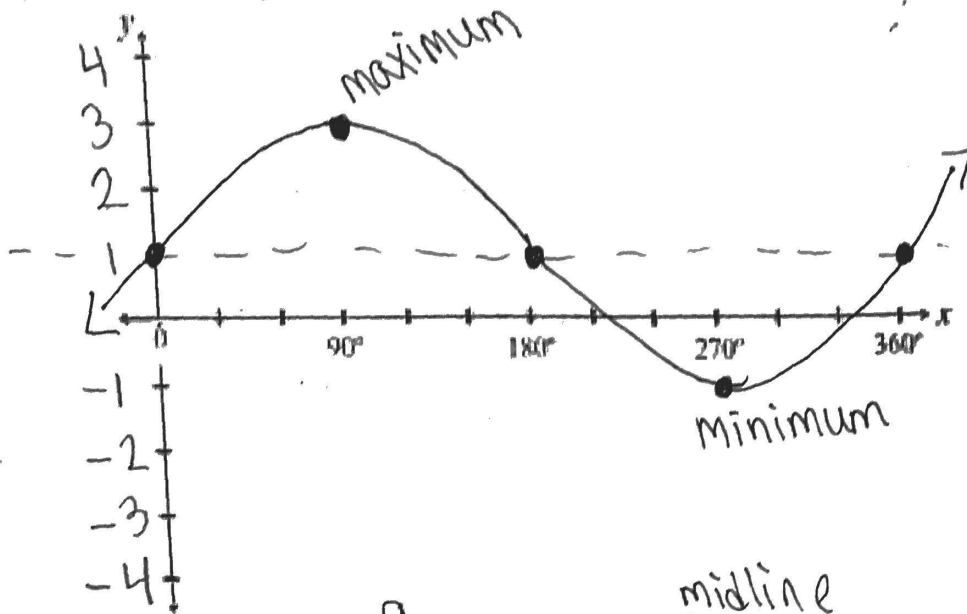
$k$  = shifts the MIDLINE of the graph

Example 1:

$$y = 2 \sin \theta + 1$$

$a \downarrow$                        $m \downarrow$

$$a = 2$$



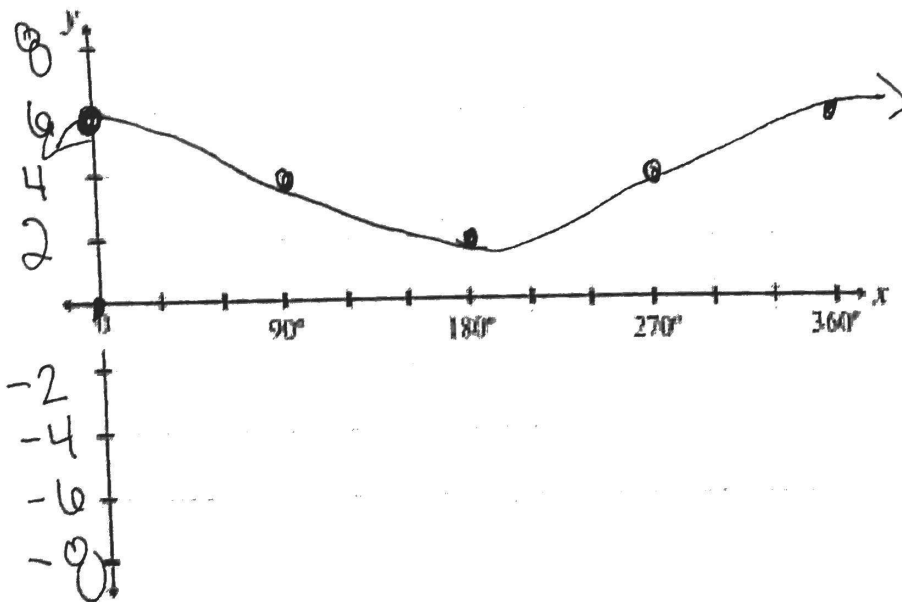
$x$	$y$
0	1
90	3
180	1
270	-1
360	1

$1+2$   
 $1-2$

Example 2:

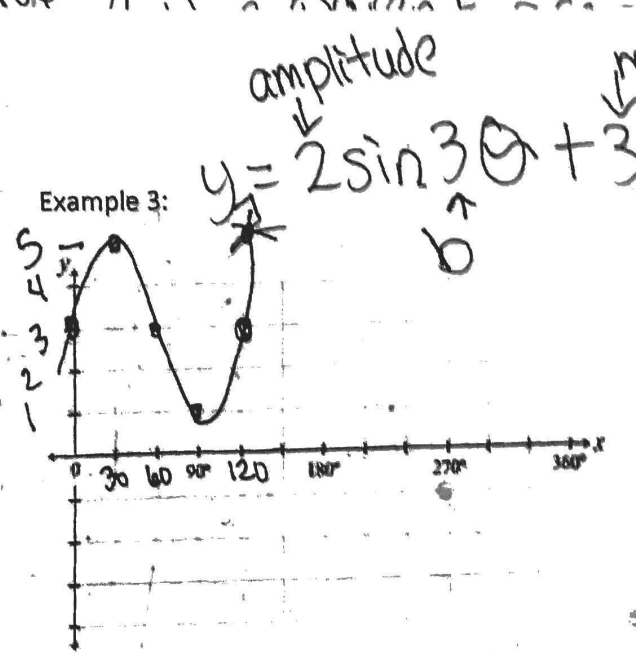
$$y = 2 \cos \theta + 4$$

$a \downarrow$                        $\downarrow$  midline



$x$	$y$
0	6
90	4
180	2
270	4
360	6

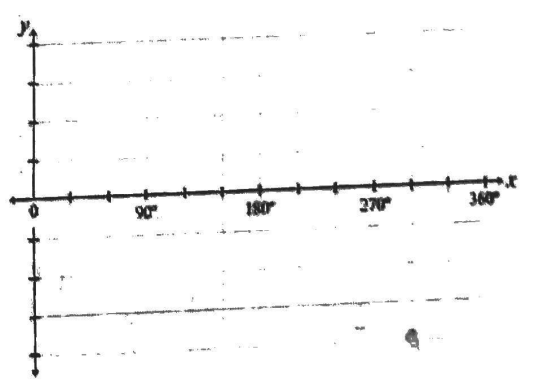
$4+2$   
 $4-2$



$$p = \frac{360}{3} = \frac{120^\circ}{4} = 30^\circ$$

X	Y
0	3
30	5
60	3
90	1
120	3

Example 4:



Example 5:

