

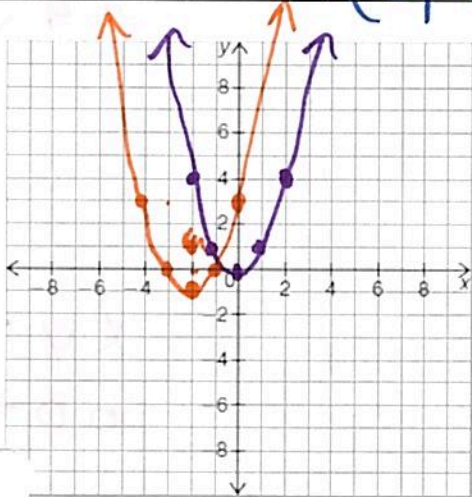
PAP Algebra 2  
3.2-3.4 Practice WS

Name: key 

Given  $f(x) = x^2$ , complete the table and graph  $h(x)$ .

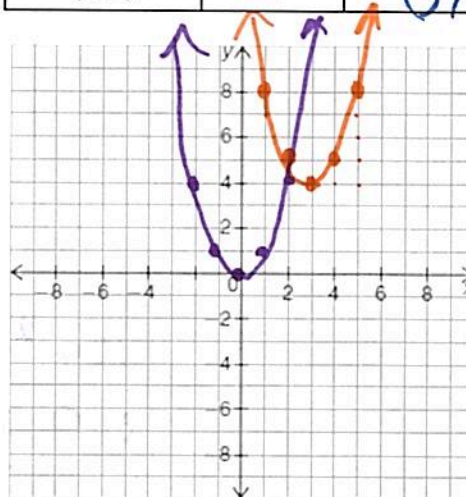
1.  $h(x) = (x+2)^2 - 1$       $-2, -1$

Reference Points of $f(x)$	→	Corresponding Points on $h(x)$
(0, 0)	→	$(-2, -1)$
(1, 1)	→	$(-1, 0)$
(2, 4)	→	$(0, 3)$



2.  $h(x) = (x-3)^2 + 4$       $+3, +4$

Reference Points of $f(x)$	→	Corresponding Points on $h(x)$
(0, 0)	→	$(3, 4)$
(1, 1)	→	$(4, 5)$
(2, 4)	→	$(5, 8)$



Each given function is in transformational function form  $g(x) = Af(B(x-C)) + D$ , where  $f(x) = x^2$ . Identify the values of  $C$  and  $D$  for the given function. Then, describe how the vertex of the given function compares to the vertex of  $f(x)$ .

3.  $g(x) = f(x-5) - 11$

$g(x) = (x-5)^2 - 11$

vertex: ~~(0,0)~~  
Shifts  
Right 5  
Down 11

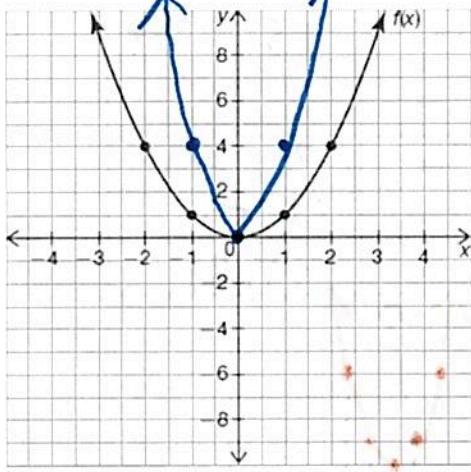
4.  $g(x) = f(x+2) + 3$

$g(x) = (x+2)^2 + 3$

left 2  
up 3

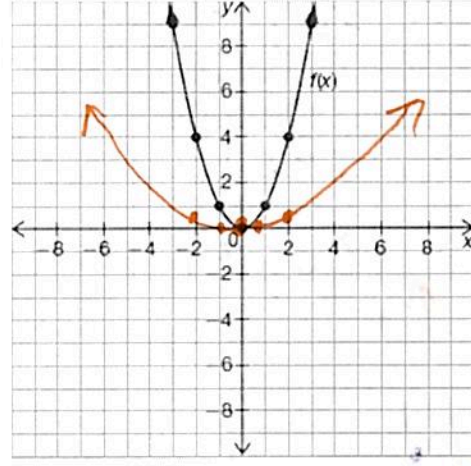
Graph each vertical dilation of  $f(x) = x^2$  accurately, and tell whether the transformation is a vertical stretch or a vertical compression and if the graph includes a reflection.

5.  $g(x) = 4x^2$



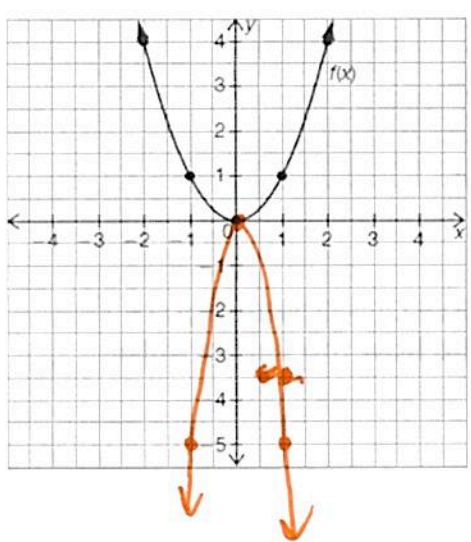
x	y	4
0	0	0
1	1	4
2	4	16
-1	1	4
-2	4	16

6.  $p(x) = \frac{1}{8}x^2$



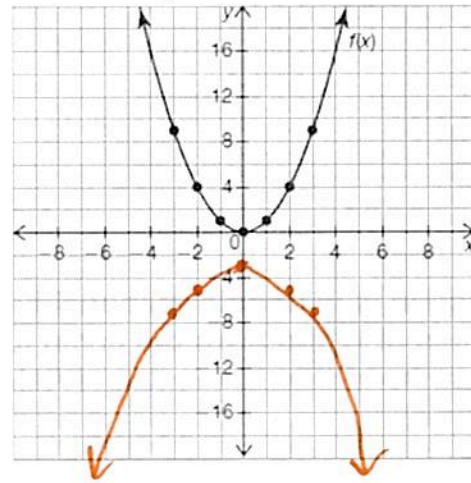
0	0	0
1	1	1/8
-1	1	1/8
2	4	1/2
-2	4	1/2

7.  $h(x) = -5x^2$



x	y	$\times -5$
0	0	0
1	1	-5
-1	1	-5

8.  $g(x) = -\frac{1}{2}x^2 - 3$



x	y	$-\frac{1}{2}$ $-3$
0	0	-3
2	4	-5
-2	4	-5
3	9	-7.5
-3	9	-7.5

Each given function is in transformational function form  $g(x) = Af(B(x - C)) + D$ , where  $f(x) = x^2$ . Describe how  $g(x)$  compares to  $f(x)$ . Then, use coordinate notation to represent how the A-, C-, and D-values transform  $f(x)$  to generate  $g(x)$ .

9.  $g(x) = -3(f(x)) - 1$

$(x, -3y - 1)$

What you do to the table

10.  $g(x) = -4(f(x + 3))$

$(x - 3, -4y)$

11.  $g(x) = \frac{1}{3}f(x - 6) - 3$

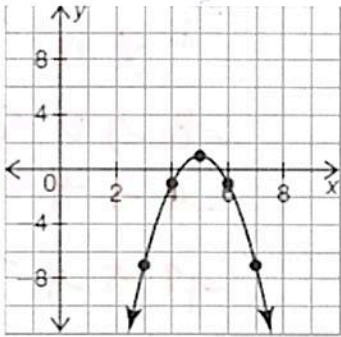
$(x + 6, \frac{1}{3}y - 3)$

12.  $g(x) = \frac{4}{3}f\left(x - \frac{1}{3}\right) + \frac{2}{3}$

$(x + \frac{1}{3}, \frac{4}{3}y + \frac{2}{3})$

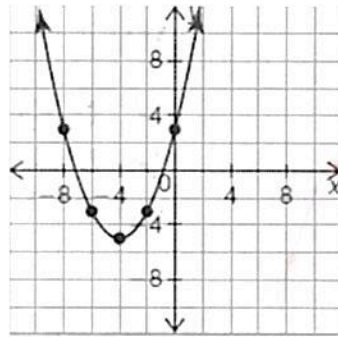
Write the transformations that occurred from  $f(x) = x^2$  to the given graphs below in function notation.

13.  $a = 2$



vert. reflect.  
Right 5  
up 1  
vert. stretch  
 $g(x) = -2(x-5)^2 + 1$

14.  $a = 1$



left 4  
down 5

$$g(x) = (x+4)^2 - 5$$

Write a function  $g(x)$  that has been transformed from  $f(x) = x^2$  in function notation using the characteristics below.

15. Vertically compressed

$$g(x) = \frac{1}{2}f(x)$$

16. Horizontally reflected

$$g(x) = f(-x)$$

17. Horizontally stretched

$$g(x) = f\left(\frac{1}{2}x\right)$$

18. Vertically stretched

$$g(x) = 2f(x)$$

19. Vertically reflected

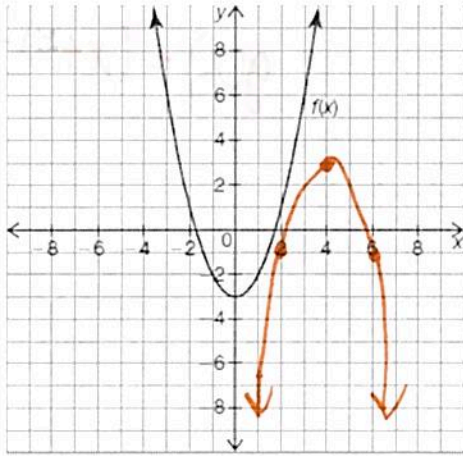
$$g(x) = -f(x)$$

20. Horizontally compressed

$$g(x) = f(3x)$$

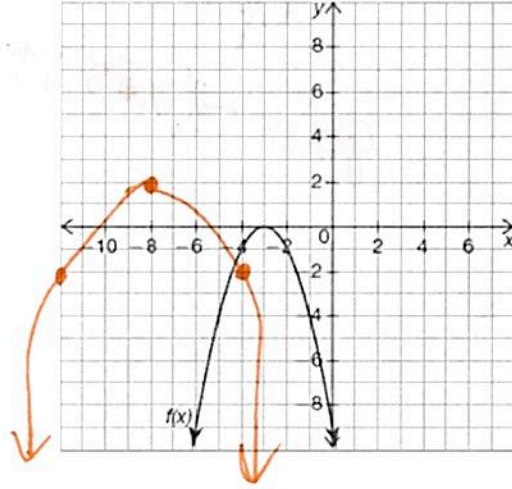
The graph of  $f(x)$  is shown. Sketch the graph of the given transformed function.

21.  $t(x) = -f(x - 4)$



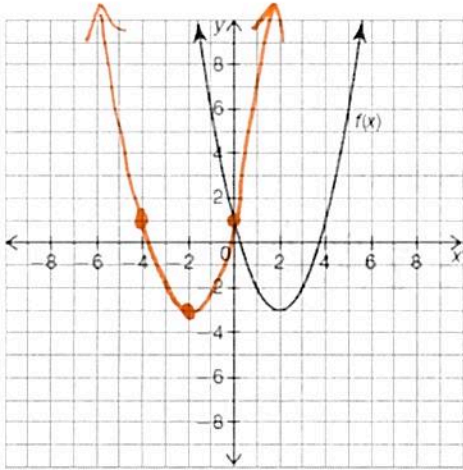
$x$	$y$
0	-3
2	1
4	3
6	-1

22.  $r(x) = f\left(\frac{1}{2}(x + 2)\right) + 2$



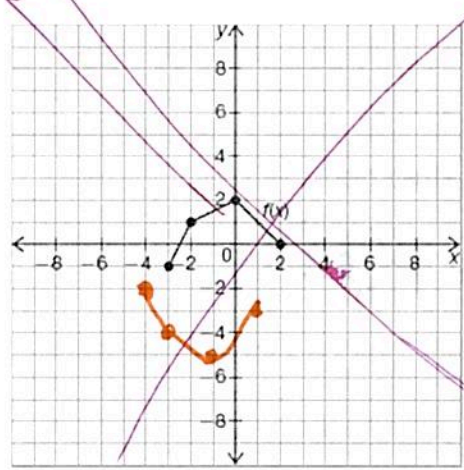
$x$	$y$
-8	-3
-4	1
-2	2
0	-1

23.  $d(x) = f(-x)$



$x$	$y$
-4	1
0	-3
4	1

24.  $p(x) = -f(x + 1) - 3$



$x$	$y$
0	-3
1	-1
2	1
3	-1