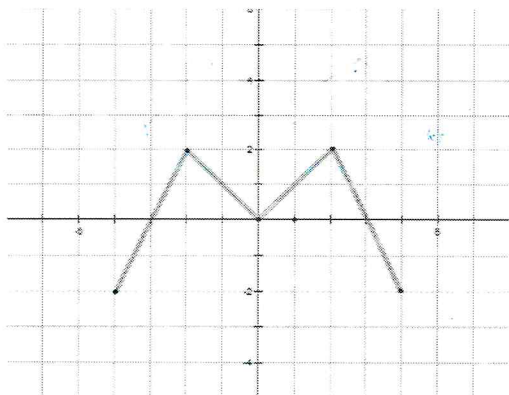


Key

Transforming Arbitrary Functions Notes HONORS

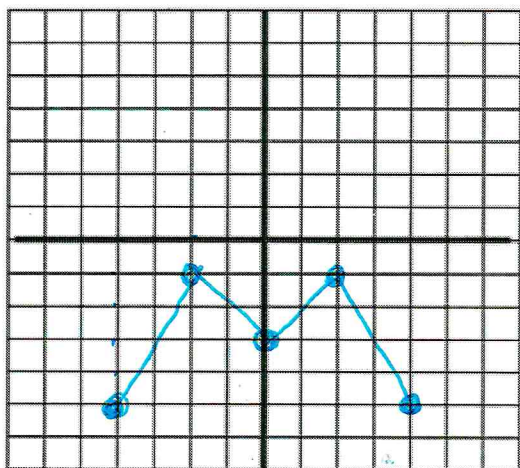
Use the following arbitrary function to transform each function as indicated.



x	y
-4	-2
-2	2
0	0
2	2
4	-2

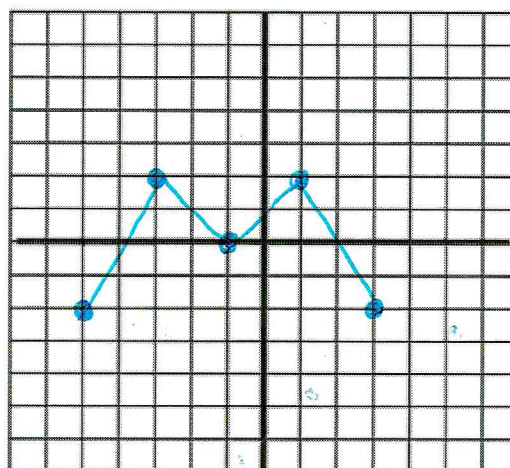
State the transformation of each function. Then sketch a graph of the transformed function. Make a table!

1) $g(x) = f(x) \overset{y-3}{(-3)} \leftarrow k$
Down 3



x	y-3
-4	-2-3=-5
-2	2-3=-1
0	0-3=-3
2	2-3=-1
4	-2-3=-5

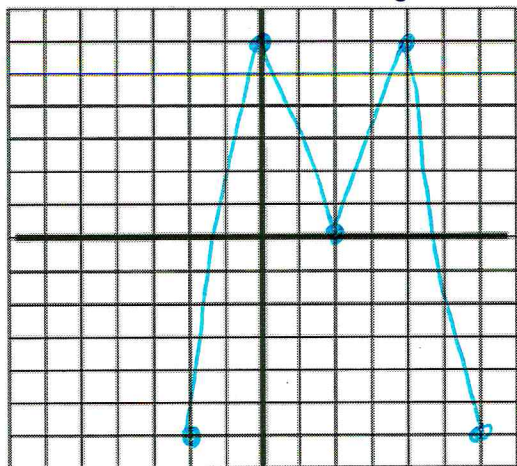
2) $h(x) = f(x) \overset{\leftarrow opp}{+1} \leftarrow k$ left 1



x-1	y
-4-1=-5	-2
-2-1=-3	2
0-1=-1	0
2-1=1	2
4-1=3	-2

$$3) j(x) = 3f(x-2)$$

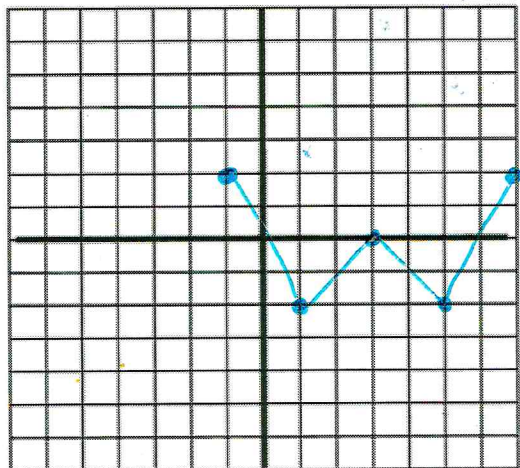
stretch 3, right 2



$x+2$	$3y$
$-4+2 = -2$	$3 \cdot -2 = -6$
$-2+2 = 0$	$3 \cdot 2 = 6$
$0+2 = 2$	$3 \cdot 0 = 0$
$2+2 = 4$	$3 \cdot 2 = 6$
$4+2 = 6$	$3 \cdot -2 = -6$

$$5) m(x) = -f(x-3)$$

Reflect over x-axis, right 3

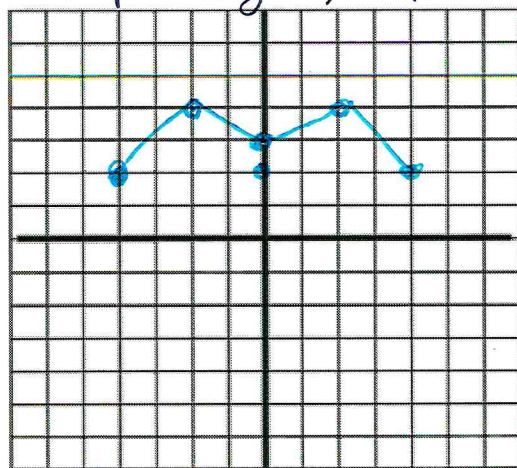


$x+3$	$-y$
$-4+3 = -1$	2
$-2+3 = 1$	-2
$0+3 = 3$	0
$2+3 = 5$	-2
$4+3 = 7$	2

$$\frac{1}{2}y+3$$

$$4) k(x) = \frac{1}{2}f(x) + 3$$

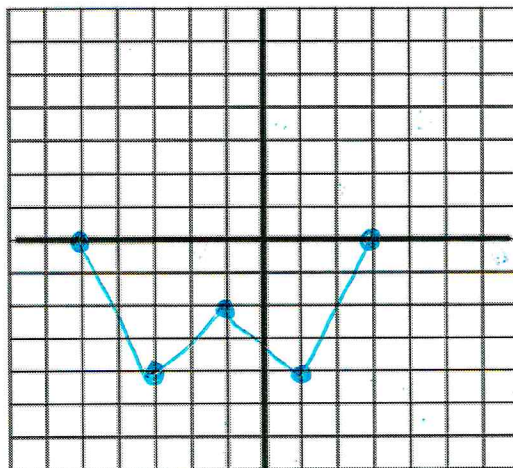
compress by $\frac{1}{2}$, up 3



x	$\frac{1}{2}y+3$
-4	$\frac{1}{2}(-2)+3 = -1+3 = 2$
-2	$\frac{1}{2}(2)+3 = 1+3 = 4$
0	$\frac{1}{2}(0)+3 = 0+3 = 3$
2	$\frac{1}{2}(2)+3 = 1+3 = 4$
4	$\frac{1}{2}(-2)+3 = -1+3 = 2$

$$6) n(x) = -f(x+1) - 2$$

Reflect over x-axis, left 1, down 2



$x-1$	$-y-2$
$-4-1 = -5$	$-(-2)-2 = 0$
$-2-1 = -3$	$-(2)-2 = -4$
$0-1 = -1$	$-(0)-2 = -2$
$2-1 = 1$	$-(2)-2 = -4$
$4-1 = 3$	$-(-2)-2 = 0$