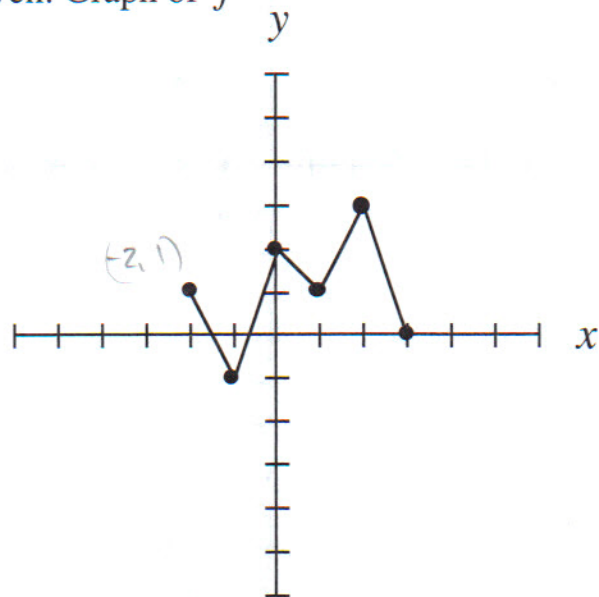


## Activity 1: Explore Transformations

Given: Graph of  $f$ Table for  $f$ 

$f(-2) = 1$

$f(-1) = -1$

$f(0) = 2$

$f(1) = 1$

$f(2) = 3$

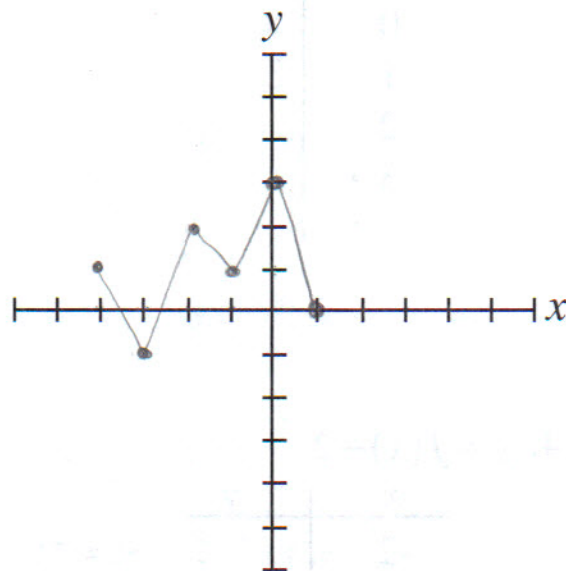
$f(3) = 0$

Complete tables and sketch graphs of:

1.  $y = f(x+2)$

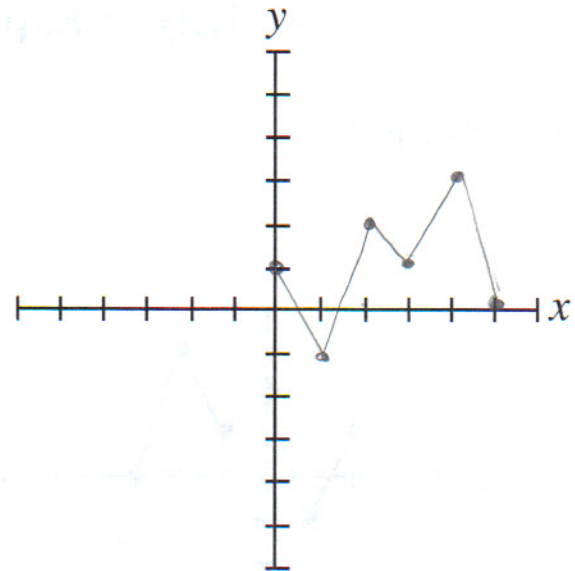
 $\leftarrow 2$  units

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



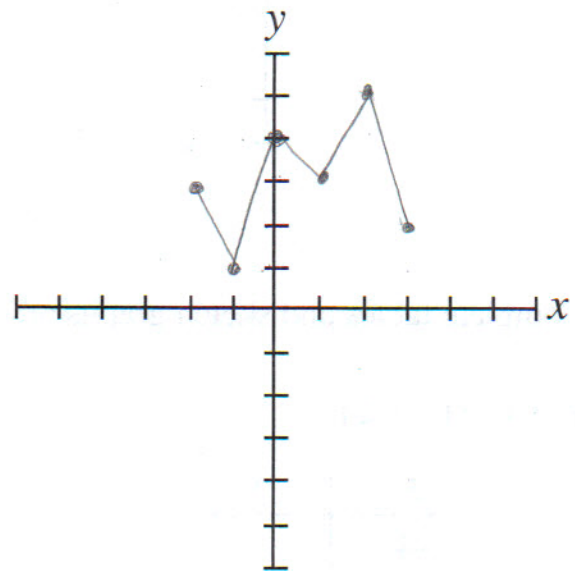
$$2. y = f(x-2) \quad \rightarrow 2 \text{ units}$$

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



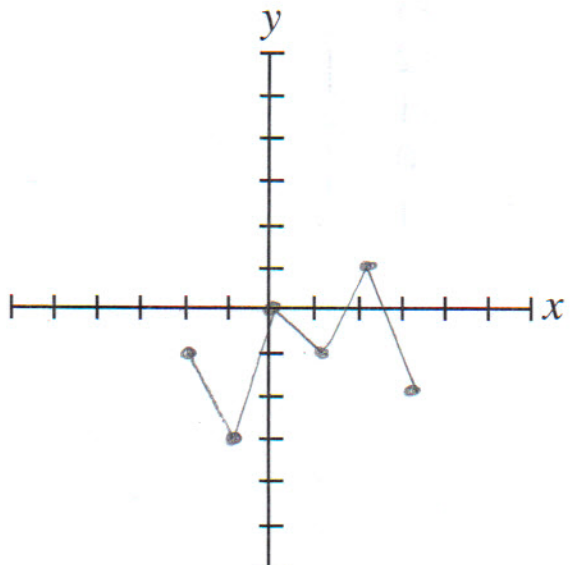
$$3. y = f(x) + 2 \quad \uparrow 2$$

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



$$4. y = f(x) - 2 \quad \downarrow 2$$

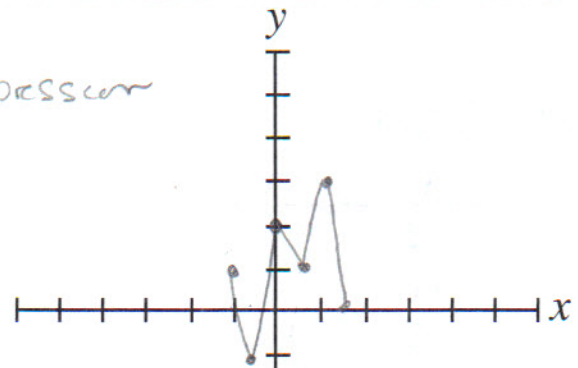
$x$	$y$
-2	-1
-1	-3
0	0
1	-1
2	1
3	-2



5.  $y = f(2x)$

Horiz. compression

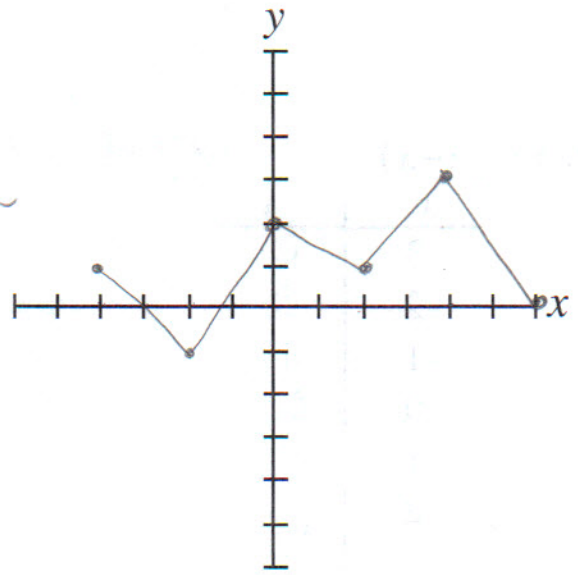
$x$	$y$
-1	1
$-\frac{1}{2}$	-1
0	2
$\frac{1}{2}$	1
1	3
$\frac{3}{2}$	0



6.  $y = f\left(\frac{1}{2}x\right)$

Horiz stretch

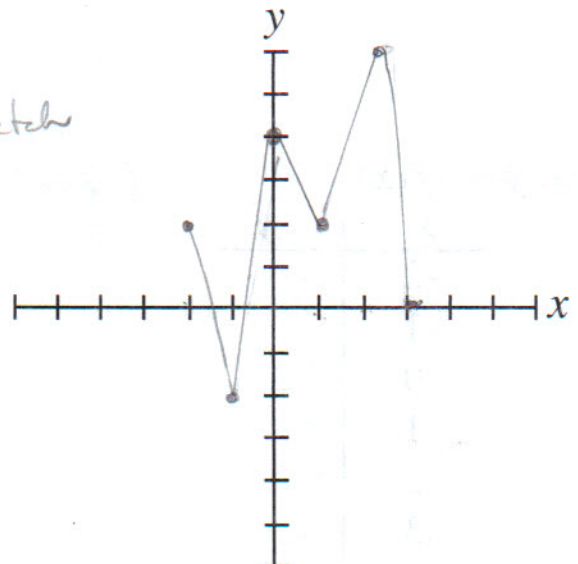
$x$	$y$
-4	1
-2	-1
0	2
2	1
4	3
6	0



7.  $y = 2f(x)$

Vertical stretch

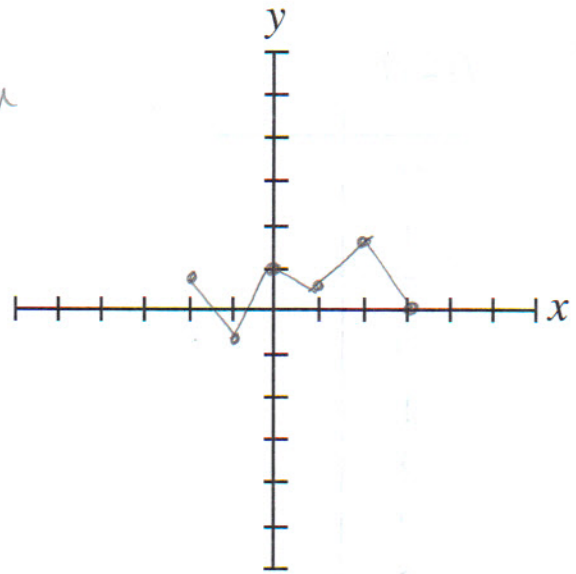
$x$	$y$
-2	2
-1	-2
0	4
1	2
2	6
3	0



8.  $y = \frac{1}{2}f(x)$

*Vert shrunk*

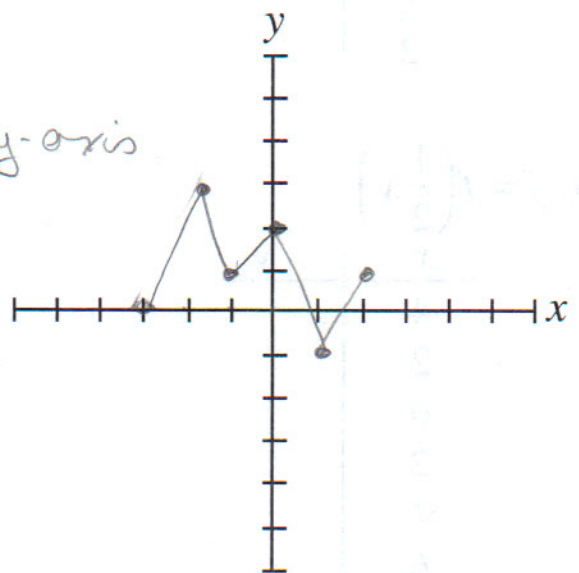
$x$	$y$
-2	$\frac{1}{2}$
-1	$-\frac{1}{2}$
0	1
1	$\frac{1}{2}$
2	$\frac{3}{2}$
3	0



9.  $y = f(-x)$

*reflect over y-axis*

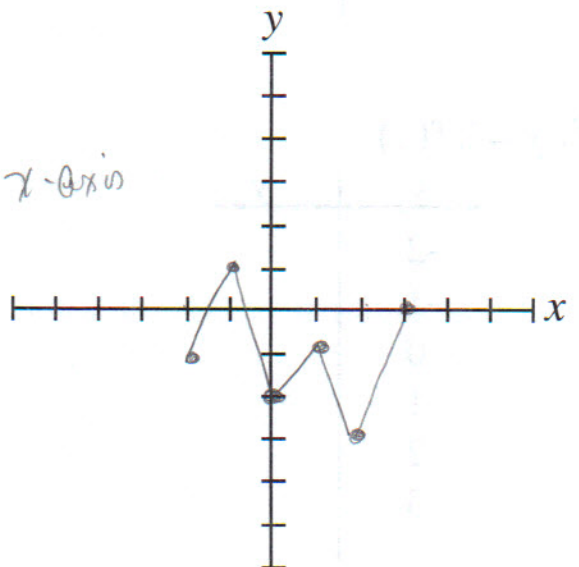
$x$	$y$
-3	0
-2	3
-1	1
0	2
1	-1
2	1



10.  $y = -f(x)$

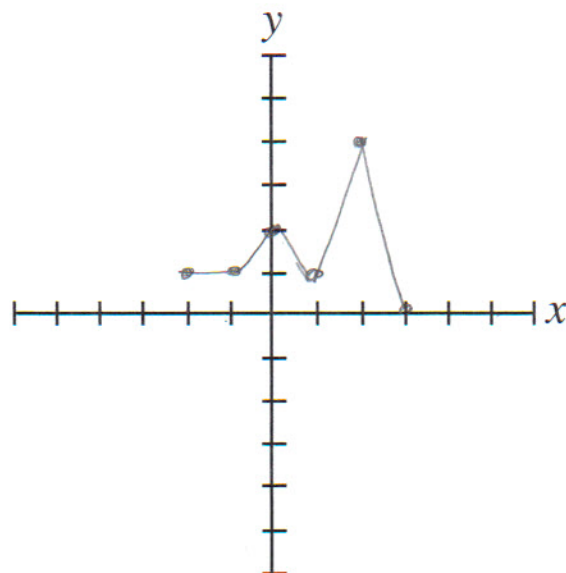
*reflect over x-axis*

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



11.  $y = |f(x)|$

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



12.  $y = f(|x|)$

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

