

## Section 7.2 Extra Practice

1. Given the table of values for  $y = f(x)$ , create a table of values for  $y = |f(x)|$ .

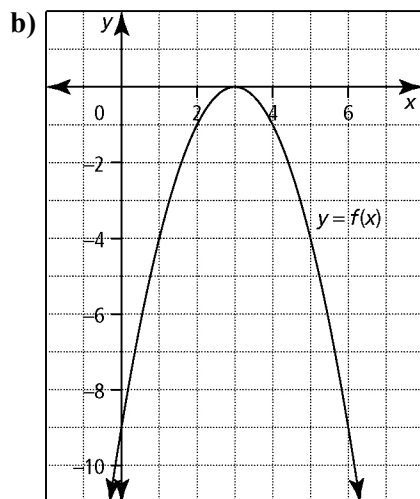
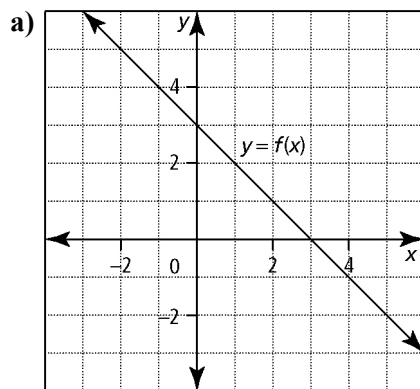
a)

$x$	$y$
0	1
2	0
4	-1
6	-2
8	-3

b)

$x$	$y$
-4	-8
-2	0
0	0
2	-8
4	-24

2. Use the graph of  $y = f(x)$  to sketch the graph of  $y = |f(x)|$ .



3. Sketch the graph of each function. State the intercepts, and the domain and range.

a)  $f(x) = |2x + 1|$

b)  $g(x) = |-x - 4|$

4. Sketch the graph of each function. State the intercepts, and domain and range.

a)  $y = |-x^2 - 6x - 5|$

b)  $f(x) = |(2x + 1)(x - 3)|$

5. Express each function as a piecewise function.

a)  $y = |5x + 1|$

b)  $y = \left| \frac{-1}{2}x + 4 \right|$

c)  $y = |2(x + 2)^2 - 8|$

d)  $y = |-2(x + 3)(x - 1)|$

6. Consider the following functions:

•  $f(x) = x + 5$

•  $g(x) = |f(x)|$

•  $h(x) = (x + 5)^2$

•  $k(x) = |h(x)|$

- a) Which functions are identical?  
b) Which functions have the same domain?  
c) Which functions have the same range?  
d) Which functions have the same  $x$ -intercept(s)?

7. For each pair of functions, determine the invariant point(s).

a)  $y = 3x - 9$  and  $y = |3x - 9|$

b)  $y = -x^2$  and  $y = |-x^2|$

c)  $y = -x^2 - 4x$  and  $y = |-x^2 - 4x|$

d)  $y = (x + 1)^2 + 2$  and  $y = |(x + 1)^2 + 2|$

