

2-6

Practice

Form G

Families of Functions

How is each function related to $y = x$? Graph the function by translating the parent function.

1. $y = x + 2$

2. $y = x - 1.2$

Make a table of values for $f(x)$ after the given translation.

3. 2 units down

x	$f(x)$
-2	-7
0	-5
3	-2
5	0
6	1

4. 3 units up

x	$f(x)$
-2	2
-1	3
0	4
1	5
3	7

5. 1 unit down

x	$f(x)$
-1	1
1	3
3	5
5	7
7	9

Write an equation for each vertical translation of $y = f(x)$.

6. $\frac{1}{4}$ unit down

7. 5 units up

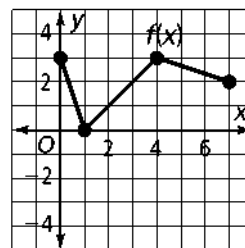
For each function, identify the horizontal translation of the parent function $f(x) = x^2$. Then graph the function.

8. $y = (x - 5)^2$

9. $y = (x + 1.8)^2$

10. The graph of the function $f(x)$ is shown at the right.

- Make a table of values for $f(x)$ and $f(x) - 2$.
- Graph $f(x)$ and $f(x) - 2$ on the same coordinate grid.



2-6

Practice (continued) Families of Functions

Form G

Write an equation for each transformation of $y = x$.

11. vertical stretch by a factor of 3

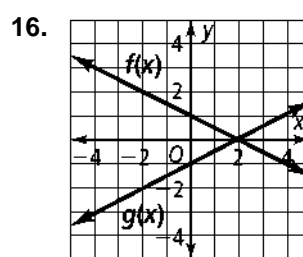
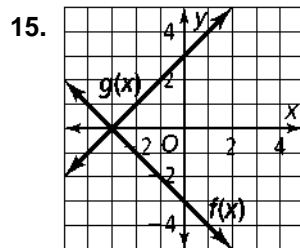
12. vertical compression by a factor of $\frac{1}{5}$

Describe the transformations of $f(x)$ that produce $g(x)$.

13. $f(x) = 4x; g(x) = \frac{x}{2} - 1$

14. $f(x) = 5x; g(x) = -2(5x - 1)$

Write the equations for $f(x)$ and $g(x)$. Then identify the reflection that transforms the graph of $f(x)$ to the graph of $g(x)$.



Graph each pair of functions on the same coordinate plane. Describe a transformation that changes $f(x)$ to $g(x)$.

17. $f(x) = x + 3$
 $g(x) = x - 2$

18. $f(x) = -x - 4$
 $g(x) = x + 1$