Name _____ Hour _____ Date _____

6-7

Practice   *Form K*

Inverse Relations and Functions

Display the inverse table of each relation. (Switch the corresponding *x* and *y* values.)

1.

x	y
0	−1
1	1
2	3
3	5

x	y

2.

x	y
−2	7
0	3
2	7
4	19

x	y

3.

x	y
−3	2
−2	2
−1	2
0	2

x	y

Find the inverse of each function. To start, switch *x* and *y*.
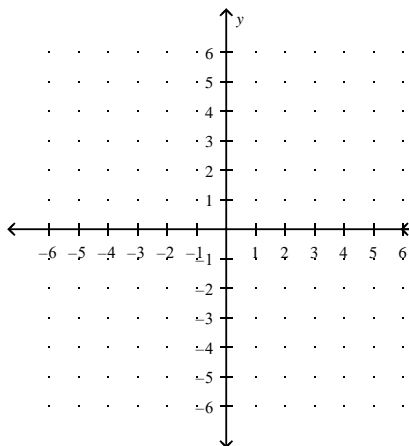
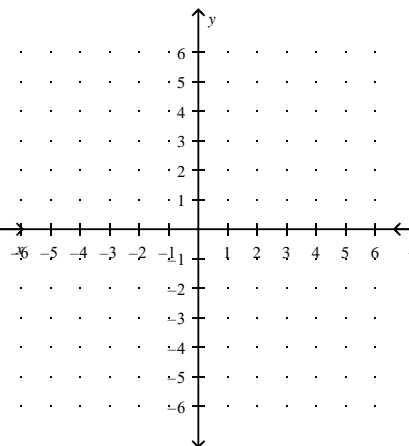**4.** $y = \dfrac{x}{2}$

$x = \dfrac{y}{2}$

5. $y = x^2 + 4$

6. $y = (3x - 4)^2$

Graph each relation and its inverse. (Graph the given function. Identify ordered pairs *(x, y)*. Switch them and replot.)
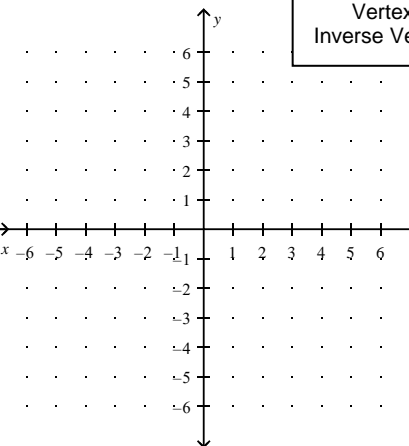
7. $y = 3x - 4$

8. $y = -x^2$

9. $y = (3 - 2x)^2$

Vertex: (1.5, 0)
Inverse Vertex: (0, 1.5)

6-7

Practice (continued)

Form K

Inverse Relations and Functions

Find the inverse of each function. To start, switch x and y.

10. $f(x) = (x + 1)^2$

11. $f(x) = \dfrac{2x^3}{5}$

12. $f(x) = \sqrt{3x} + 4$

13. Multiple Choice What is the inverse of $y = 5x - 1$?

Ⓐ $f^{-1}(x) = 5x + 1$

Ⓑ $f^{-1}(x) = \dfrac{x+1}{5}$

Ⓒ $f^{-1}(x) = \dfrac{x}{5} + 1$

Ⓓ $f^{-1}(x) = \dfrac{x}{5} - 1$

For each function, find its inverse.

14. $f(x) = \sqrt{x+1}$

15. $f(x) = 10 - 3x$

16. $f(x) = 4x^2 + 25$

17. The formula for the area of a circle is $A = \pi r^2$.
  a. Find the inverse of the formula. Is the inverse a function?
  b. Use the inverse to find the radius of a circle that has an area of 82 in.^{2}.

For Exercises 18 − 20, $f(x) = 5x + 11$. Find each value. To start, rewrite $f(x)$ as y and switch x and y.

18. $\left(f \circ f^{-1}\right)(5)$

19. $\left(f^{-1} \circ f\right)(-3)$

20. $\left(f^{-1} \circ f\right)(0)$

$y = 5x + 11$