

4.6 Practice A

In Exercises 1–3, solve $y = f(x)$ for x . Then find the input(s) when the output is -3 .

1. $f(x) = 2x + 3$ 2. $f(x) = \frac{1}{3}x - 2$ 3. $f(x) = 8x^3$

In Exercises 4–6, find the inverse of the function. Then graph the function and its inverse.

4. $f(x) = 4x$ 5. $f(x) = 4x - 1$ 6. $f(x) = \frac{1}{2}x - 5$

7. Find the inverse of the function $f(x) = \frac{1}{5}x - 2$ by switching the roles of x and y and solving for y . Then find the inverse of the function f by using inverse operations in the reverse order. Which method do you prefer? Explain.

8. Determine whether each pair of functions f and g are inverses. Explain your reasoning.

a.

x	-2	-1	0	1	2
$f(x)$	-3	3	9	15	21

x	-3	3	0	15	21
$g(x)$	-2	-1	0	1	2

b.

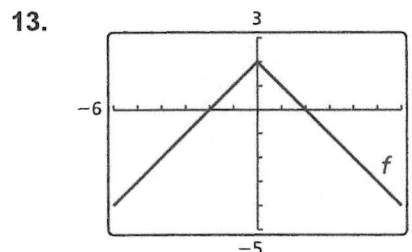
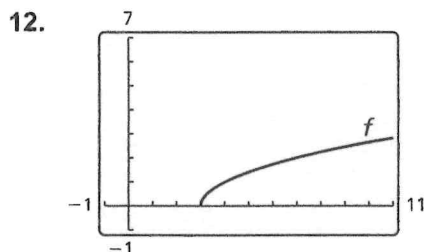
x	1	2	3	4	5
$f(x)$	9	7	5	3	1

x	9	7	5	3	1
$g(x)$	1	2	3	4	5

In Exercises 9–11, find the inverse of the function. Then graph the function and its inverse.

9. $f(x) = 9x^2, x \geq 0$ 10. ~~$f(x) = 16x^2, x \leq 0$~~ 11. $f(x) = (x + 2)^3$

In Exercises 12 and 13, use the graph to determine whether the inverse of f is a function. Explain your reasoning.





Puzzle Time

What Do You Get When You Cross A SWAT Team With An Octopus?

Write the letter of each answer in the box containing the exercise number.

Find the inverse of the function.

1. $f(x) = 3x + 1$

2. $f(x) = -4x - 8$

3. $f(x) = \frac{x}{7} - 2$

4. $f(x) = \frac{2x}{3} - 4$

5. $f(x) = \frac{x-1}{5}$

6. $f(x) = -2x^2, x \geq 0$

7. $f(x) = 5x^4, x \geq 0$

8. $f(x) = (x+1)^3$

9. $f(x) = \sqrt{8x-3}$

10. $f(x) = (x-21)^3$

Answers

A. $g(x) = \frac{x-1}{3}$

B. $g(x) = 5x + 1$

B. $g(x) = \frac{x+8}{-4}$

O. $g(x) = 7(x+2)$

D. $g(x) = \sqrt[3]{x} + 21$

S. $g(x) = \sqrt{-\frac{x}{2}}$

Q. $g(x) = \sqrt[4]{\frac{x}{5}}$

M. $g(x) = \frac{3(x+4)}{2}$

U. $g(x) = \sqrt[3]{x} - 1$

I. $g(x) = \frac{x^2+3}{8}, x \geq 0$

1		2	3	4	5		6	7	8	9	10
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