Name

8-3B Lesson Master

Questions on SPUR Objectives
See Student Edition pages 574–577 for objectives.

SKILLS Objective B

In 1–10, write an equation for f^{-1}.

1. $f(x) = 8x$

2. $f(x) = x + 9$

3. $f(x) = 2x - 7$

4. $f(x) = -4x + 3$

5. $f(x) = \frac{7}{x}$

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

7. $f(x) = -5(x + 10)$

8. $f(x) = \frac{1}{2}x^2$, when $x \geq 0$

9. $f(x) = x^7$, when $x \geq 0$

10. $f(x) = x^{\frac{1}{8}}$, when $x \geq 0$

PROPERTIES Objective F

11. Consider the function f defined by $f(x) = -5x + 12$.

    a. Write a rule for $f^{-1}(x)$. _____

    b. Find $f \circ f^{-1}(x)$. _____ c. Find $f^{-1} \circ f(x)$. _____

12. **Fill in the Blank** If $f(6) = 78$, then $f^{-1}(78) =$ _____.

13. **Fill in the Blank** If $t^{-1}(0) = 8$, then $t(8) =$ _____.

In 14–17, two functions f and g are defined over the domain $x \geq 0$. a. Find $f(g(x))$. b. Find $g(f(x))$. c. Tell if f and g are inverses and explain why or why not.

14. $f(x) = x + 4$ and $g(x) = \frac{1}{4}x$

    a. _____

    b. _____

    c. _____

15. $f(x) = x^{\frac{4}{7}}$ and $g(x) = x^{\frac{7}{4}}$

    a. _____

    b. _____

    c. _____

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16. $f(x) = -x$ and $g(x) = -x$

a. _____

b. _____

c. _____

_____

17. $f(x) = x^1$ and $g(x) = x^{-1}$

a. _____

b. _____

c. _____

_____

REPRESENTATIONS Objective J

18. Consider the function $g: x \rightarrow x^2 - 1$, when $x \geq 0$.

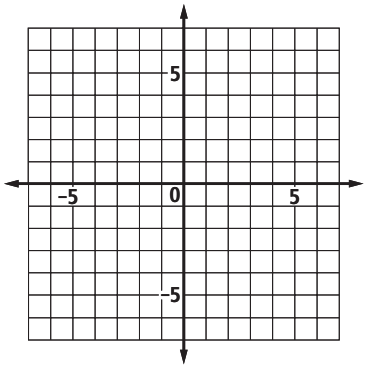
a. Graph g at the right.

b. Write an equation for g^{-1}.

_____

c. Graph g^{-1} on the same axes as g at the right.

d. Describe how the graphs of g and g^{-1} are related.



_____

_____

e. Explain why the inverse of g is not a function if the domain of g is taken as the set of real numbers.

_____

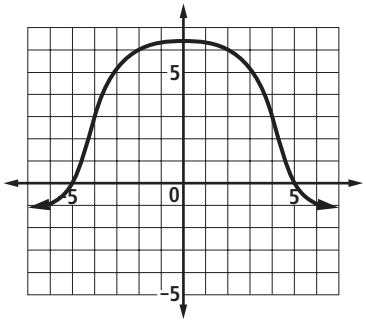
_____

19. **Multiple Choice** A function h is graphed below. Which of the following domains for h gives a function whose inverse is also a function?

A $\{x: 1 \leq x \leq 6\}$

B $\{x: x \leq 7\}$

C $\{x: -5 \leq x \leq 5\}$



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