51. CHALLENGE Consider the function $g(x) = -x$.

a. Graph $g(x) = -x$ and explain why it is its own inverse. Also verify that $g(x) = g^{-1}(x)$ algebraically.

b. Graph other linear functions that are their own inverses. Write equations of the lines you graphed.

c. Use your results from part (b) to write a general equation describing the family of linear functions that are their own inverses.

MIXED REVIEW FOR TAKS

TAKS PRACTICE at classzone.com

REVIEW
Lesson 5.2;
TAKS Workbook

52. TAKS PRACTICE What is the value of $f(x) = -5x^4 + 3x^3 + 10x^2 - x - 8$ when $x = -1$? *TAKS Obj. 2*

Ⓐ -5 Ⓑ -1 Ⓒ 1 Ⓓ 3

REVIEW
Lesson 3.2;
TAKS Workbook

53. TAKS PRACTICE At a school's annual choir competition, there are a total of 750 adults and students in the audience. The number of students, s, is 30 more than three times the number of adults, a. Which system of linear equations could be used to determine the numbers of students and adults in the audience? *TAKS Obj. 4*

Ⓕ $s + a = 30$
$s = 750 - 3a$

Ⓖ $s + a = 750$
$s = 30 + 3a$

Ⓗ $s + a = 750$
$a = 30 + 3s$

Ⓙ $s + a = 30$
$a = 750 - 3s$

QUIZ *for Lessons 6.3–6.4*

Let $f(x) = 4x^2 - x$ and $g(x) = 2x^2$. Perform the indicated operation and state the domain. *(p. 428)*

1. $f(x) + g(x)$ **2.** $g(x) - f(x)$ **3.** $f(x) \cdot g(x)$ **4.** $\dfrac{f(x)}{g(x)}$

5. $f(g(x))$ **6.** $g(f(x))$ **7.** $f(f(x))$ **8.** $g(g(x))$

Verify that f and g are inverse functions. *(p. 438)*

9. $f(x) = x - 9, g(x) = x + 9$

10. $f(x) = 5x^3, g(x) = \sqrt[3]{\dfrac{x}{5}}$

11. $f(x) = -\dfrac{3}{2}x + \dfrac{1}{4}, g(x) = -\dfrac{2}{3}x + \dfrac{1}{6}$

12. $f(x) = 6x^2 + 1, x \geq 0; g(x) = \left(\dfrac{x-1}{6}\right)^{1/2}$

Find the inverse of the function. *(p. 438)*

13. $f(x) = -\dfrac{1}{3}x + 5$ **14.** $f(x) = x^2 - 16, x \geq 0$ **15.** $f(x) = -\dfrac{2}{9}x^5$

16. $f(x) = 5x + 12$ **17.** $f(x) = -3x^3 - 4$ **18.** $f(x) = 9x^4 - 49, x \leq 0$

19. GASOLINE COSTS The cost (in dollars) of g gallons of gasoline can be modeled by $C(g) = 2.15g$. The amount of gasoline used by a car can be modeled by $g(d) = 0.02d$ where d is the distance (in miles) that the car has been driven. Find $C(g(d))$ and $C(g(400))$. What does $C(g(400))$ represent? *(p. 428)*