4-7 Inverse Linear Functions

Find the inverse of each relation.

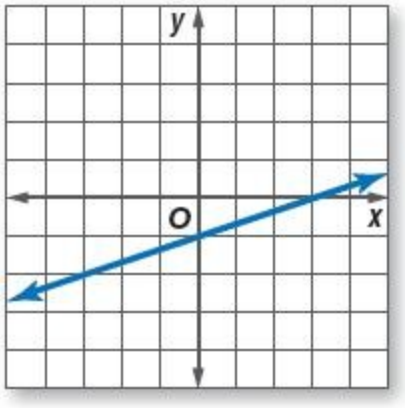
8. $\{(-5, 13), (6, 10.8), (3, 11.4), (-10, 14)\}$

10.

x	y
−8	−36.4
−2	−15.4
1	−4.9
5	9.1
11	30.1

Graph the inverse of each relation.

12.



Find the inverse of each function.

14. $f(x) = 25 + 4x$

16. $f(x) = 4(x + 17)$

18. $f(x) = \frac{2}{5}x + 10$

21. **LANDSCAPING** At the start of the mowing season, Chuck collects a one-time maintenance fee of $25 from his customers. He charges the Fosters $45 for each cut. The total amount collected from the Fosters in dollars for the season is $C^{-1}(x) = 25 + 45x$, where x is the number of times Chuck mows the Fosters' lawn.

a. Find the inverse function.

b. What do x and $C^{-1}(x)$ represent in the context of the inverse function?

c. How many times did Chuck mow the Fosters' lawn if he collected a total of $1015 from them?

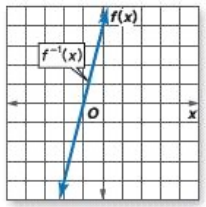
Write the inverse of each equation in $f^{-1}(x)$ notation.

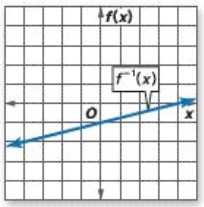
22. $3y - 12x = -72$

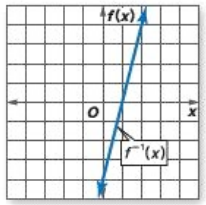
24. $-42 + 6y = x$

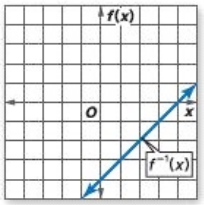
26. $-7y + 2x = -28$

TOOLS & TECHNIQUES Match each function with the graph of its inverse.

A. 

B. 

C. 

D. 

28. $f(x) = x + 4$

29. $f(x) = 4x + 4$

30. $f(x) = \frac{1}{4}x + 1$

31. $f(x) = \frac{1}{4}x - 1$

Write an equation for the inverse function $f^{-1}(x)$ that satisfies the given conditions.

33. graph of $f(x)$ contains the points (−3, 6) and (6, 12)

35. slope of $f(x)$ is 4; $f^{-1}(5) = 2$

39. **PROBLEM SOLVING** If $f(x) = \frac{1}{a}x + 7$ and $f^{-1}(x) = 2x - b$, find a and b.

44. The table shows some values of a linear function.

x	−2	0	3	7
y	0	1	2.5	?

What is the missing value in the table?

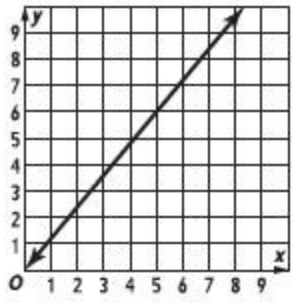
A 1
B 4
C 4.5
D 5.5

45. For the function $f(x) = -\frac{1}{3}x - 3$, what is the value of x when $f(x) = -6$?

    F –5
    G –1
    H 3
    J 9

46. **GRIDDABLE** For what value of the domain does $x = f(x)$ if $f\left(x\right) = \frac{1}{2}x + 5$?

47. The graph shows the adjusted price y for an item with an original price of x after a certain percent increase.



    What is the slope of the line that takes the increased price as an input x, and returns the original price as the output y?

    A $\frac{1}{5}$
    B $\frac{6}{5}$
    C $\frac{5}{6}$
    D 5