

1. In (a)–(d), determine whether f and g are inverse functions.

(a) $f(x) = 4x$, $g(x) = \frac{1}{4}x$

(b) $f(x) = 3x + 1$, $g(x) = 3x - 1$

(c) $f(x) = \sqrt[3]{x-2}$, $g(x) = x^3 + 2$

(d) $f(x) = x^4$, $g(x) = \sqrt[4]{x}$

5. In each part, determine whether the function f defined by the table is one-to-one.

(a)

x	1	2	3	4	5	6
$f(x)$	-2	-1	0	1	2	3

(b)

x	1	2	3	4	5	6
$f(x)$	4	-7	6	-3	1	4

7. (a) The accompanying figure shows the graph of a function f over its domain $-8 \leq x \leq 8$. Explain why f has an inverse, and use the graph to find $f^{-1}(2)$, $f^{-1}(-1)$, and $f^{-1}(0)$.

(b) Find the domain and range of f^{-1} .

(c) Sketch the graph of f^{-1} .

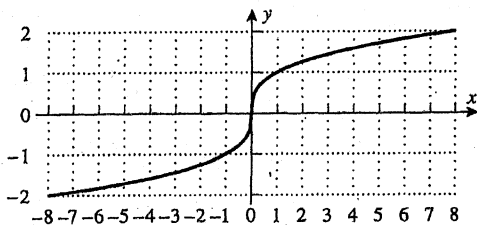


Figure Ex-7

8. (a) Explain why the function f graphed in the accompanying figure has no inverse function on its domain $-3 \leq x \leq 4$.

(b) Subdivide the domain into three adjacent intervals on each of which the function f has an inverse.

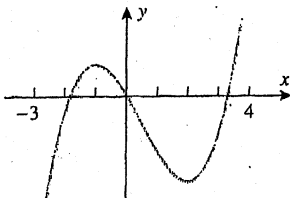


Figure Ex-8

24. The formula $F = \frac{9}{5}C + 32$, where $C \geq -273.15$ expresses the Fahrenheit temperature F as a function of the Celsius temperature C .

(a) Find a formula for the inverse function.

(b) In words, what does the inverse function tell you?

(c) Find the domain and range of the inverse function.

27. (a) Show that $f(x) = (3-x)/(1-x)$ is its own inverse.

(b) What does the result in part (a) tell you about the graph of f ?

29. Let $f(x) = 2x^3 + 5x + 3$. Find x if $f^{-1}(x) = 1$.

30. Let $f(x) = \frac{x^3}{x^2+1}$. Find x if $f^{-1}(x) = 2$.