

5.2 Assess Your Understanding

296 of 1158

'Are You Prepared?' Answers are given at the end of these exercises. If you get a wrong answer, read the pages listed in red.

- Is the set of ordered pairs $\{(1, 3), (2, 3), (-1, 2)\}$ a function? Why or why not? (pp. 46–54)
- Where is the function $f(x) = x^2$ increasing? Where is it decreasing? (pp. 70–71)
- What is the domain of $f(x) = \frac{x+5}{x^2+3x-18}$? (pp. 46–54)
- Simplify: $\frac{\frac{1}{x} + 1}{\frac{1}{x^2} - 1}$ (pp. A36–A42)

Concepts and Vocabulary

- If x_1 and x_2 are two different inputs of a function f , then f is one-to-one if _____.
- If every horizontal line intersects the graph of a function f at no more than one point, f is a(n) _____ function.
- If f is a one-to-one function and $f(3) = 8$, then $f^{-1}(8) = \underline{\hspace{2cm}}$.
- If f^{-1} denotes the inverse of a function f , then the graphs of f and f^{-1} are symmetric with respect to the line _____.
- If the domain of a one-to-one function f is $[4, \infty)$, the range of its inverse, f^{-1} , is _____.
- True or False** If f and g are inverse functions, the domain of f is the same as the range of g .

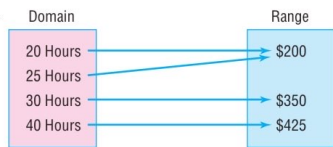
Skill Building

In Problems 11–18, determine whether the function is one-to-one.

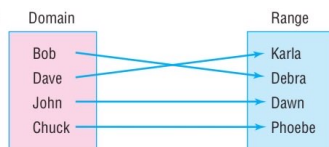
11.



13.



12.



14.



15.

$\{(2, 6), (-3, 6), (4, 9), (1, 10)\}$

17.

$\{(0, 0), (1, 1), (2, 16), (3, 81)\}$

16.

$\{(-2, 5), (-1, 3), (3, 7), (4, 12)\}$

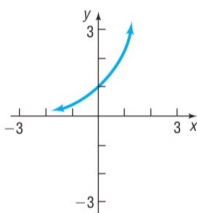
18.

$\{(1, 2), (2, 8), (3, 18), (4, 32)\}$

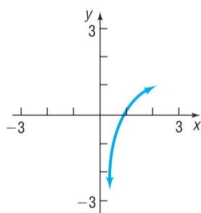
264 CHAPTER 5 Exponential and Logarithmic Functions

In Problems 19–24, the graph of a function f is given. Use the horizontal-line test to determine whether f is one-to-one.

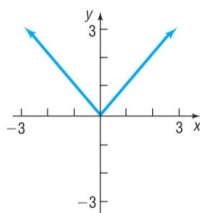
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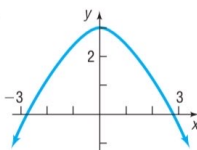
20.



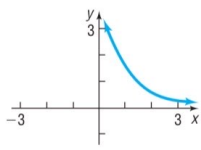
21.



22.



23.



24.

