

Name _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Evaluate the expression using the values given in the table.

1) $(f \circ g)(4)$

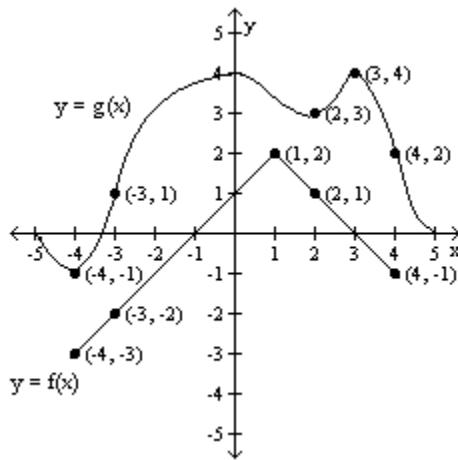
1) _____

x	1	5	8	12
f(x)	-2	8	2	13

x	-5	-2	1	4
g(x)	1	-5	5	8

2)

2) _____



$f(g(-3))$

3) $g(f(-1))$

3) _____

For the given functions f and g, find the requested composite function value.

4) $f(x) = |12x^2 - 2x|$, $g(x) = 18x - 8$; Find $(f \circ g)(9)$.

4) _____

5) $f(x) = 4x + 2$, $g(x) = 4x^2 + 1$; Find $(f \circ f)(3)$.

5) _____

6) $f(x) = 7x + 8$, $g(x) = \frac{-2}{x}$; Find $(g \circ f)(3)$.

6) _____

For the given functions f and g, find the requested composite function.

7) $f(x) = \frac{x-6}{10}$, $g(x) = 10x + 6$; Find $(g \circ f)(x)$.

7) _____

Decide whether the composite functions, $f \circ g$ and $g \circ f$, are equal to x.

8) $f(x) = \frac{x+4}{3}$, $g(x) = 3x - 4$

8) _____

9) $f(x) = 9x$, $g(x) = \frac{x}{9}$

9) _____

Solve the problem.

10) The population P of a predator mammal depends upon the number x of a smaller animal that is its primary food source. The population s of the smaller animal depends upon the amount a of a certain plant that is its primary food source. If $P(x) = 2x^2 + 9$ and $s(a) = 3a + 5$, what is the relationship between the predator mammal and the plant food source?

10) _____

Find the domain of the composite function $f \circ g$.

11) $f(x) = 4x + 4$; $g(x) = x + 5$

11) _____

12) $f(x) = x + 4$; $g(x) = \frac{9}{x + 6}$

12) _____

13) $f(x) = \frac{-1}{x - 7}$; $g(x) = \frac{-49}{x}$

13) _____

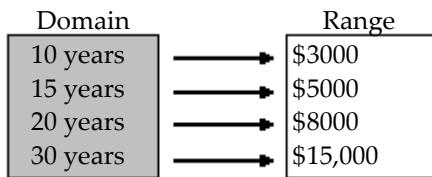
14) $f(x) = 5x + 25$; $g(x) = \sqrt{x}$

14) _____

Determine whether the function is one-to-one.

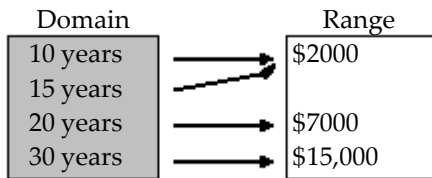
15)

15) _____



16)

16) _____



Indicate whether the function is one-to-one.

17) $\{(-7, 11), (-14, 11), (-16, 14)\}$

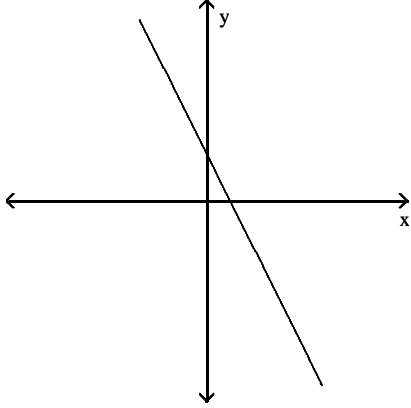
17) _____

18) $\{(6, -12), (11, -11), (9, -10), (7, -9)\}$

18) _____

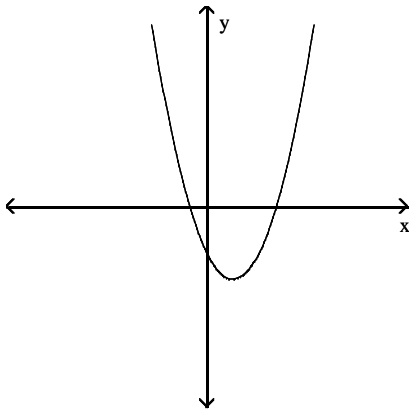
Use the horizontal line test to determine whether the function is one-to-one.

19)



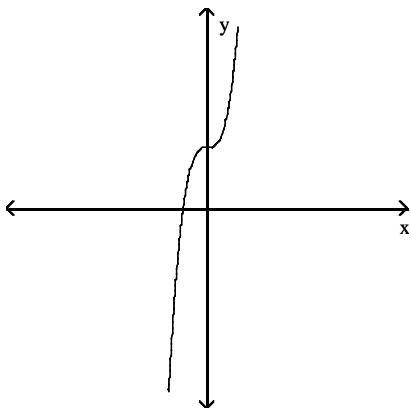
19) _____

20)



20) _____

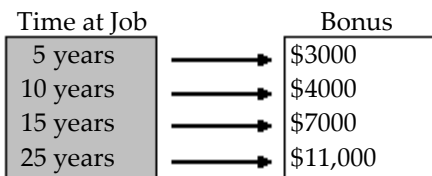
21)



21) _____

Find the inverse of the function and state its domain and range .

22)



22) _____

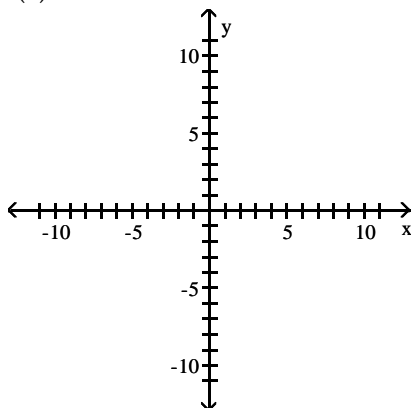
23) $\{(-4, 5), (-5, 4), (6, 3), (-6, -3)\}$

23) _____

Graph the function as a solid line or curve and its inverse as a dashed line or curve on the same axes.

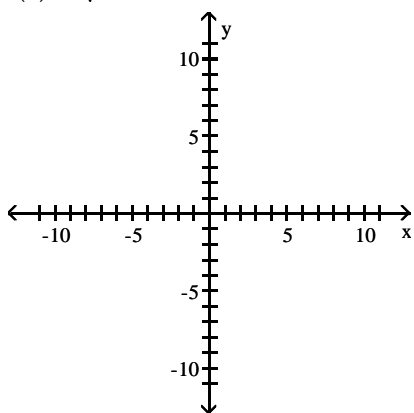
24) $f(x) = 5x$

24) _____



25) $f(x) = \sqrt{x+3}$

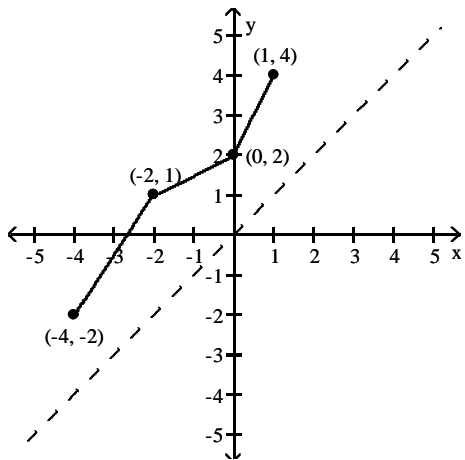
25) _____



The graph of a one-to-one function is given. Draw the graph of the inverse function f^{-1} . For convenience, the graph of $y = x$ is also give.

26)

26) _____



Decide whether or not the functions are inverses of each other.

27) $f(x) = 9x - 9$, $g(x) = \frac{1}{9}x + 1$

27) _____

28) $f(x) = 7x - 9$, $g(x) = \frac{x + 7}{9}$

28) _____

The function f is one-to-one. Find its inverse.

29) $f(x) = 5x - 3$

29) _____

30) $f(x) = \frac{8}{x}$

30) _____

31) $f(x) = x^3 - 1$

31) _____

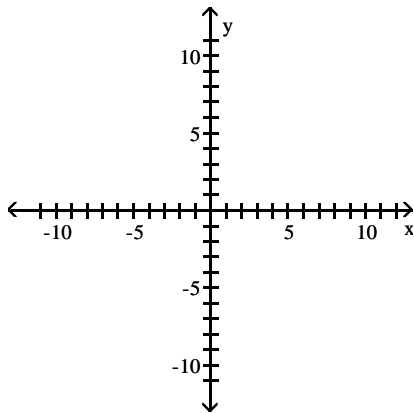
32) $f(x) = \frac{4}{3x + 5}$

32) _____

Use transformations to graph the function. Determine the domain, range, and horizontal asymptote of the function.

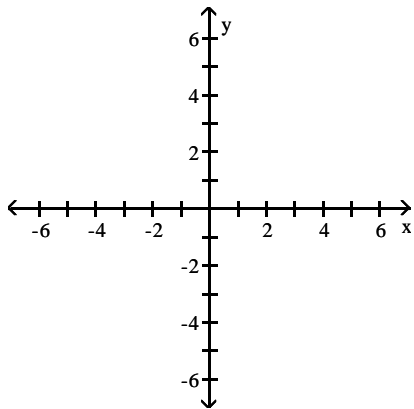
33) $f(x) = -2^{x+3} + 4$

33) _____



34) $f(x) = 5^{-x} + 4$

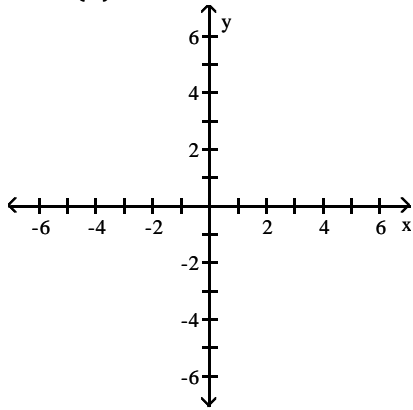
34) _____



Graph the function.

35) $f(x) = \left(\frac{1}{2}\right)^x$

35) _____



Find the domain of the function.

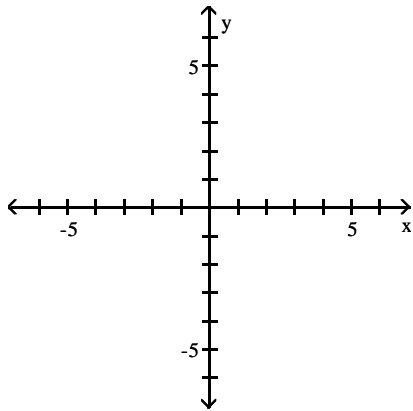
36) $f(x) = \ln(2 - x)$

36) _____

Graph the function and its inverse on the same Cartesian plane.

37) $f(x) = \log_2 x$

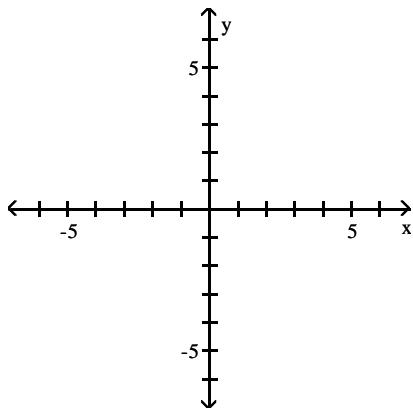
37) _____



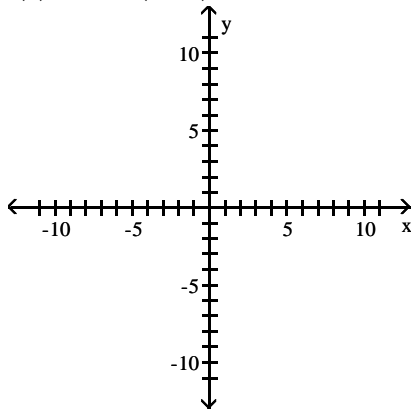
Graph the function.

38) $f(x) = -3 \ln x$

38) _____

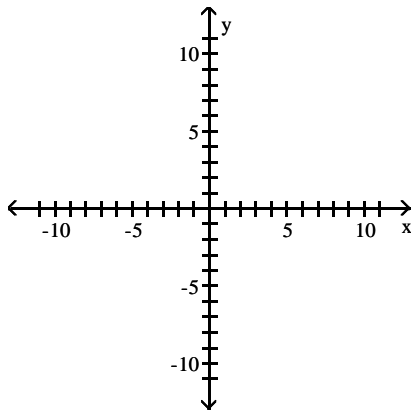


39) $f(x) = 2 - \ln(x + 4)$



39) _____

40) $f(x) = 1 + \log_5 x$

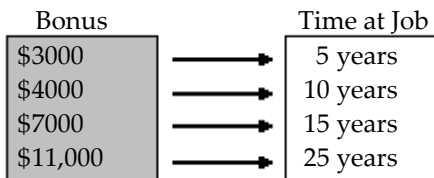


40) _____

Answer Key

Testname: CHAPTER 6 (6.1 - 6.4) V1

- 1) 2
- 2) 2
- 3) 4
- 4) 284,284
- 5) 58
- 6) $-\frac{2}{29}$
- 7) x
- 8) Yes, yes
- 9) Yes, yes
- 10) $P(s(a)) = 18a^2 + 60a + 59$
- 11) $\{x \mid x \text{ is any real number}\}$
- 12) $\{x \mid x \neq -6\}$
- 13) $\{x \mid x \neq 0, x \neq -7\}$
- 14) $\{x \mid x \geq 0\}$
- 15) One-to-one
- 16) Not one-to-one
- 17) No
- 18) Yes
- 19) Yes
- 20) No
- 21) Yes
- 22)

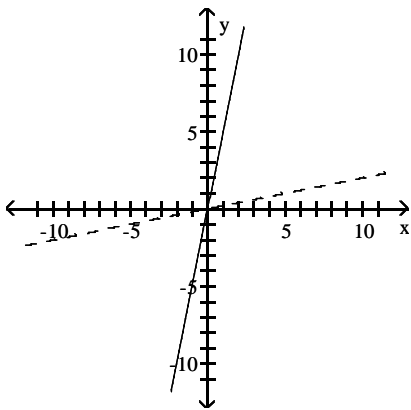


D: {3000, 4000, 7000, 11,000}

R: {5, 10, 15, 25}

23) $\{(5, -4), (4, -5), (3, 6), (-3, -6)\}$ D = {5, 4, 3, -3}; R = {-4, -5, 6, -6}

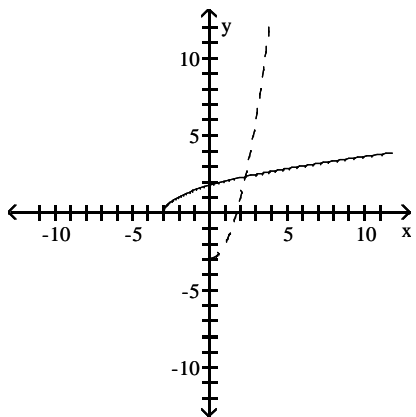
24)



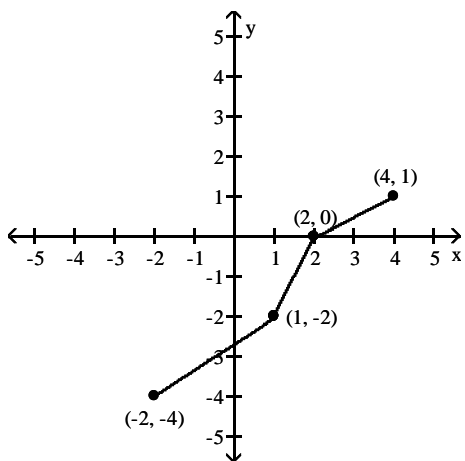
Answer Key

Testname: CHAPTER 6 (6.1 - 6.4) V1

25)



26)



27) Yes

28) No

29) $f^{-1}(x) = \frac{x+3}{5}$

30) $f^{-1}(x) = \frac{8}{x}$

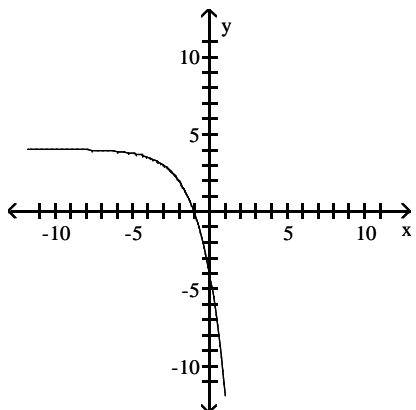
31) $f^{-1}(x) = \sqrt[3]{x+1}$

32) $f^{-1}(x) = \frac{4}{3x} - \frac{5}{3}$

Answer Key

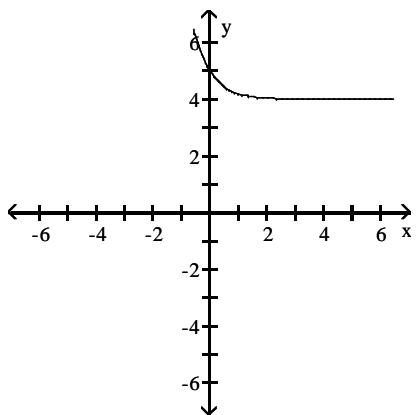
Testname: CHAPTER 6 (6.1 - 6.4) V1

33)



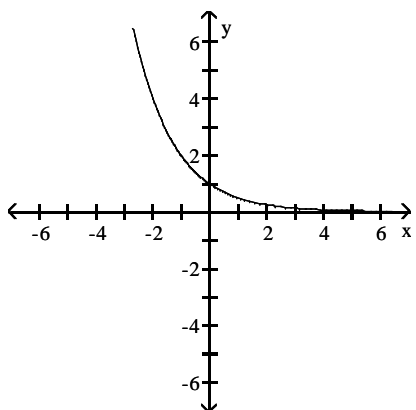
domain of f : $(-\infty, \infty)$; range of f : $(-\infty, 4)$;
horizontal asymptote: $y = 4$

34)



domain of f : $(-\infty, \infty)$; range of f : $(4, \infty)$
horizontal asymptote: $y = 4$

35)

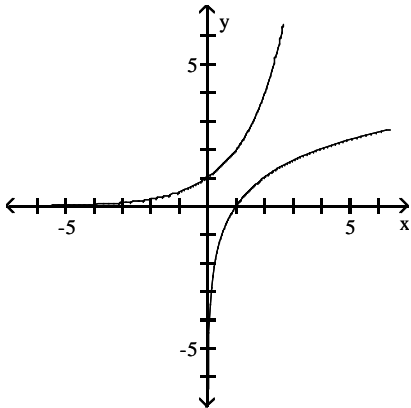


36) $(-\infty, 2)$

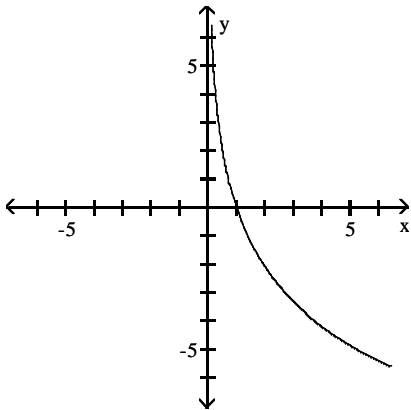
Answer Key

Testname: CHAPTER 6 (6.1 - 6.4) V1

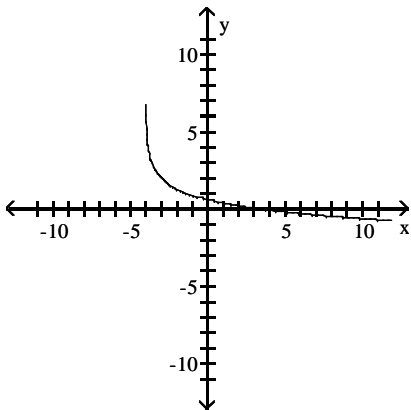
37)



38)



39)



Answer Key

Testname: CHAPTER 6 (6.1 - 6.4) V1

40)

