

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Determine whether the relation is a function.

1) $\{(-9, -7), (-9, 5), (1, 2), (5, -2), (10, -2)\}$

A) Function

B) Not a function

1) _____

2) $x^2 + y^2 = 25$

A) Function

B) Not a function

2) _____

3) $y = -\sqrt{x+1}$

A) Function

B) Not a function

3) _____

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

Evaluate the function at the given value of the independent variable and simplify.

4) $f(x) = 3x^2 + 2x - 3$; $f(x - 1)$

4) _____

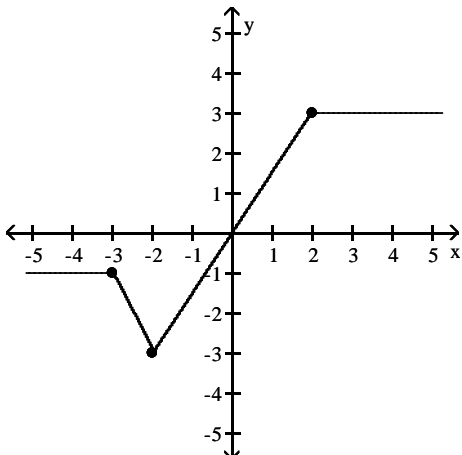
5) $f(x) = \frac{x^3 + 8}{x^2 - 8}$; $f(2)$

5) _____

Identify the intervals where the function is changing as requested.

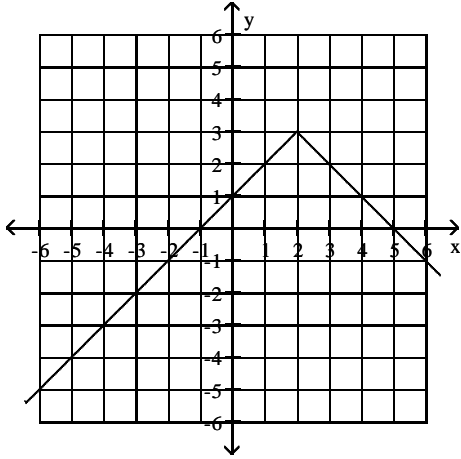
6) Increasing

6) _____



Use the graph to determine the function's domain and range.

7)

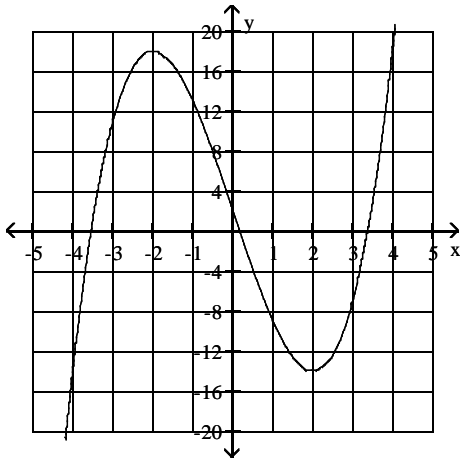


7) _____

Use the graph of the given function to find the point(s) of any relative maxima and relative minima.

8) $f(x) = x^3 - 12x + 2$

8) _____



Determine whether the given function is even, odd, or neither.

9) $f(x) = 5x^2 + x^4$

9) _____

10) $f(x) = x^3 + x^2 + 1$

10) _____

Evaluate the piecewise function at the given value of the independent variable.

$$11) f(x) = \begin{cases} x + 5 & \text{if } x > 1 \\ -(x + 5) & \text{if } x \leq 1 \end{cases}; f(-3)$$

11) _____

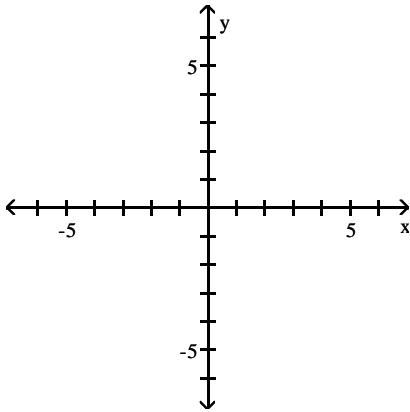
$$12) h(x) = \begin{cases} \frac{x^2 + 4}{x - 3} & \text{if } x \neq 3 \\ x - 1 & \text{if } x = 3 \end{cases}; h(3)$$

12) _____

Graph the function.

$$13) f(x) = \begin{cases} x - 1 & \text{if } x < 1 \\ -5 & \text{if } x \geq 1 \end{cases}$$

13) _____



Find and simplify the difference quotient $\frac{f(x+h) - f(x)}{h}$, $h \neq 0$ for the given function.

$$14) f(x) = x^2 + 7x + 5$$

14) _____

Use the given conditions to write an equation for the line in slope-intercept form.

15) Passing through $(1, -4)$ with x -intercept = -1

15) _____

Use the given conditions to write an equation for the line in point-slope form.

16) Passing through $(8, -7)$ and $(-4, -1)$

16) _____

Given functions f and g , perform the indicated operations.

17) $f(x) = 3 - 3x$, $g(x) = -8x + 3$

Find $f + g$.

17) _____

18) $f(x) = 3x^2 - 8x$, $g(x) = x^2 - 5x - 24$

Find $\frac{f}{g}$.

18) _____

For the given functions f and g , find the indicated composition.

19) $f(x) = 8x^2 - 5x$, $g(x) = 12x - 9$

$(f \circ g)(11)$

19) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Find functions f and g so that $h(x) = (f \cdot g)(x)$.

20) $h(x) = \frac{6}{\sqrt{2x+9}}$

20) _____

A) $f(x) = \sqrt{2x+9}$, $g(x) = 6$

B) $f(x) = 6/x$, $g(x) = 2x+9$

C) $f(x) = 6$, $g(x) = \sqrt{2+9}$

D) $f(x) = 6/\sqrt{x}$, $g(x) = 2x+9$

Determine which two functions are inverses of each other.

21) $f(x) = \frac{x+3}{2}$ $g(x) = 2x+3$ $h(x) = \frac{x-3}{2}$

21) _____

A) $f(x)$ and $h(x)$

B) $g(x)$ and $h(x)$

C) $f(x)$ and $g(x)$

D) None

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

Find the inverse of the one-to-one function.

22) $f(x) = \frac{7x+8}{5}$

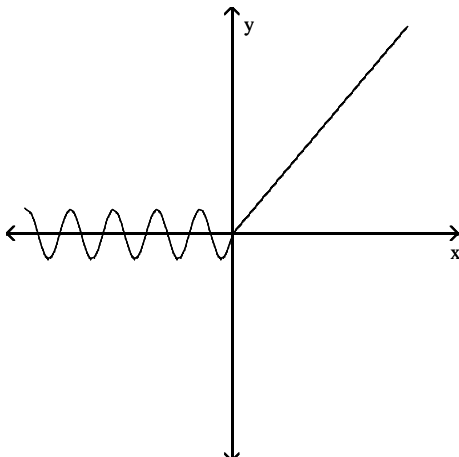
22) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Does the graph represent a function that has an inverse function?

23)

23) _____



A) No

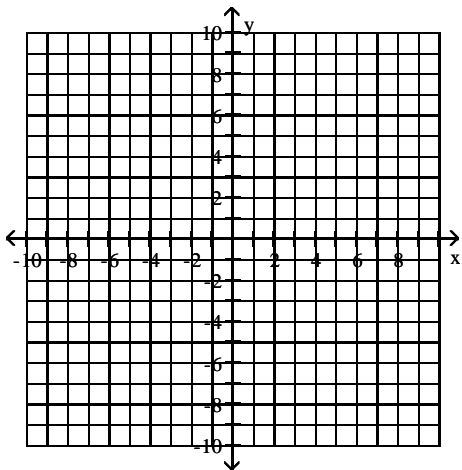
B) Yes

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

Graph f^{-1} given $f(x)$ in the rectangular coordinate space. Use interval notation to give the domain and range of f^{-1} .

24) $f(x) = x^2 - 6, x \geq 0$

24) _____



For the given functions f and g , find the indicated composition.

25) $f(x) = 4x^2 + 2x + 8, g(x) = 2x - 3$
 $(g \circ f)(x)$

25) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the problem.

26) On a certain route, an airline carries 6000 passengers per month, each paying \$100. A market survey indicates that for each \$1 decrease in the ticket price, the airline will gain 40 passengers.

26) _____

a. Express the number of passengers per month, N , as a function of the ticket price, x .

b. Express the monthly revenue for the route, R , as a function of the ticket price, x .

A) a. $N(x) = 40x + 2000$

B) a. $N(x) = -40x + 2000$

b. $R(x) = 40x^2 + 2000x$

b. $R(x) = -40x^2 + 2000x$

C) a. $N(x) = 40x + 10,000$

D) a. $N(x) = -40x + 10,000$

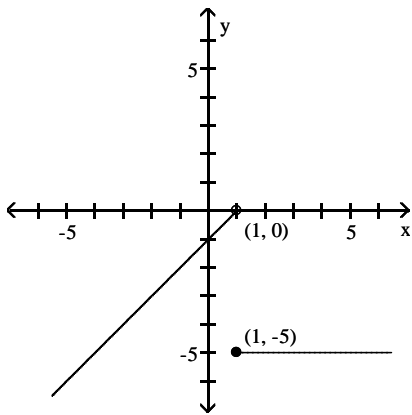
b. $R(x) = 40x^2 + 10,000x$

b. $R(x) = -40x^2 + 10,000x$

Answer Key

Testname: CHAPTER 1 PRACTICE TEST 2020

- 1) B
- 2) B
- 3) A
- 4) $3x^2 - 4x - 2$
- 5) -4
- 6) $(-2, 2)$
- 7) domain: $(-\infty, \infty)$
range: $(-\infty, 3]$
- 8) minimum: $(2, -14)$; maximum: $(-2, 18)$
- 9) Even
- 10) Neither
- 11) -2
- 12) 2
- 13)

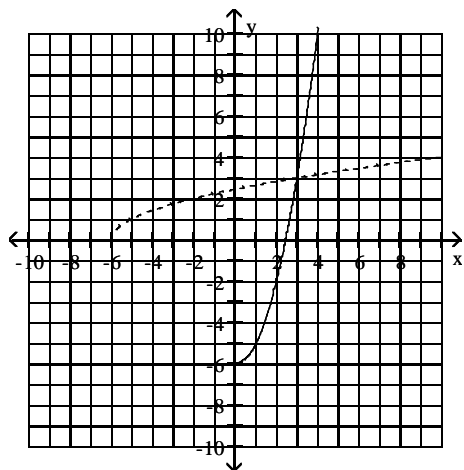


- 14) $2x + h + 7$
- 15) $y + 4 = -2(x - 1)$ or $y = -2(x + 1)$
- 16) $y = -\frac{1}{2}x - 3$
- 17) $-11x + 6$
- 18) $\frac{3x^2 - 8x}{x^2 - 5x - 24}$
- 19) 120,417
- 20) D
- 21) B
- 22) $f^{-1}(x) = \frac{5x - 8}{7}$
- 23) A

Answer Key

Testname: CHAPTER 1 PRACTICE TEST 2020

24)



f domain = $(0, \infty)$; range = $(-6, \infty)$

f^{-1} domain = $(-6, \infty)$; range = $(0, \infty)$

25) $8x^2 + 4x + 13$

26) D