EAST LOS ANGELES COLLEGE **NAME:**

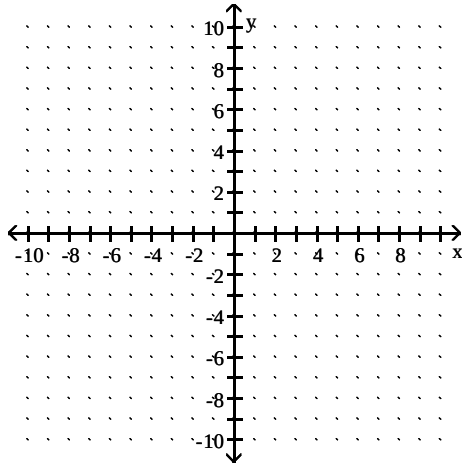
MATHEMATICS 260 SAMPLE TEST CHAPTER 2 --- STEWART'S PRECALCULUS
INSTRUCTOR: ANNE SISWANTO; TOTAL POINTS: 100; TIME: 70 MINUTES

DIRECTION: GRAPHING CALCULATORS ARE NOT ALLOWED. SHOW ALL WORKS ON THE TEST PAPER FOR FULL CREDIT. **THE SAMPLE HAS MORE PROBLEMS THAN THE REAL TEST.**

Graph the function.

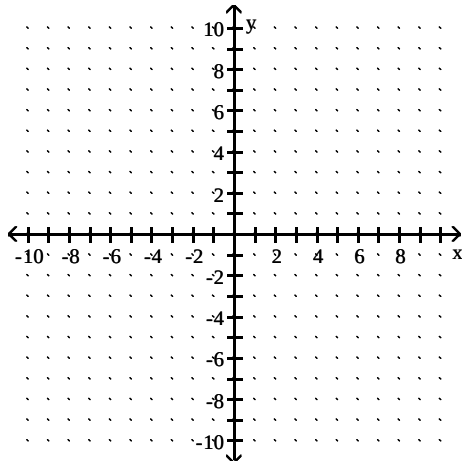
1)

$$f(x) = \begin{cases} x + 3, & \text{if } x > 0 \\ -1, & \text{if } x \le 0 \end{cases}$$

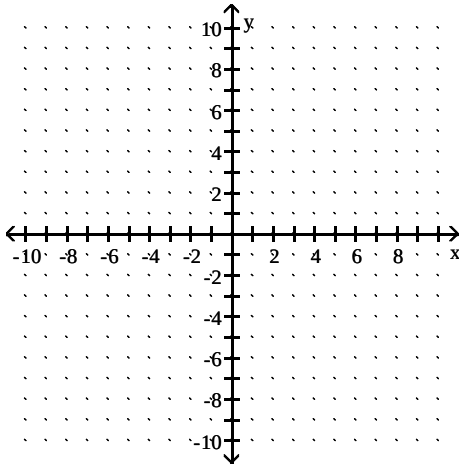


2)

$$f(x) = \begin{cases} 4x + 2 & \text{if } x < -2 \\ x & \text{if } -2 \le x \le 3 \\ 3x - 1 & \text{if } x > 3 \end{cases}$$

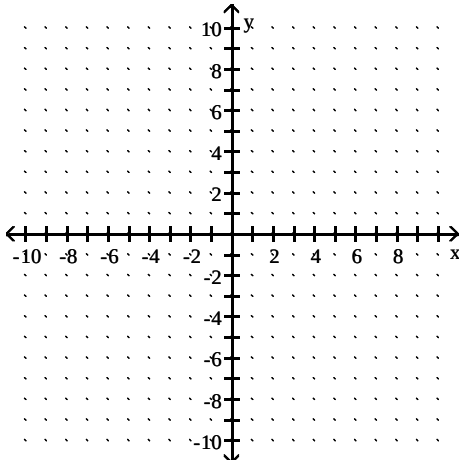


3) $f(x) = [\![x + 1]\!]$

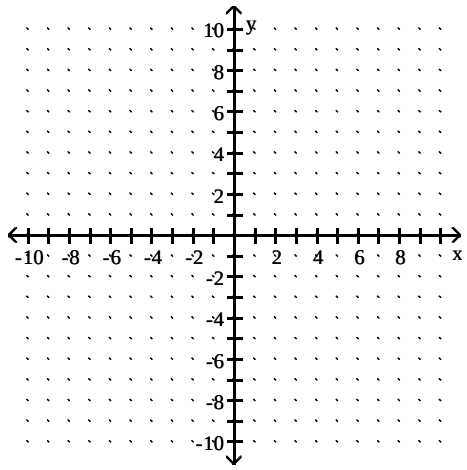


Graph the function. Follow the steps:
a. State the basic function
b. State the transformations.
c. Choose three (3) points from the basic graph and show the transformations.
d. Graph the transformed function.

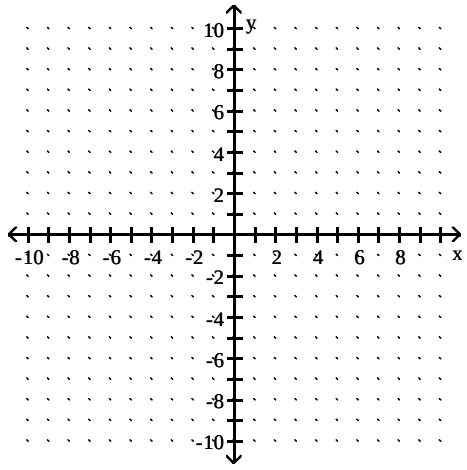
4) $y = (x - 2)^2 - 6$



5) $y = -\frac{1}{4}(x + 3)^2 + 2$



6) $y = \frac{1}{3}|x + 6| - 2$



Suppose the point (2, 4) is on the graph of y = f(x). Find a point on the graph of the given function.

7) $y = f(x + 3)$

8) $f(x) + 2$

9) $y = 3f(x)$

10) The reflection of the graph of $y = f(x)$ across the x–axis

11) The reflection of the graph of $y = f(x)$ across the y–axis

Determine whether the function is symmetric with respect to the y–axis, symmetric with respect to the x–axis, symmetric with respect to the origin, or none of these.

12) $f(x) = 3x^2 + 5$

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

14) $f(x) = 3x^2 + 4$

15) $f(x) = -7x^3 + 9x$

16) $f(x) = 7x^4 + 8x + 4$

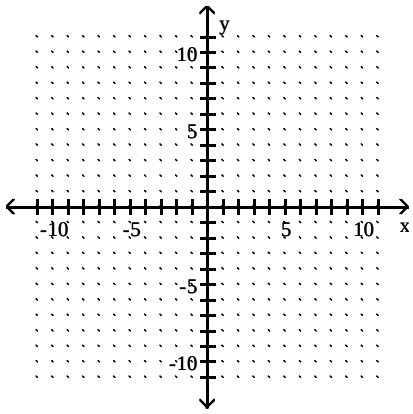
Determine if the function is even, odd, or neither.

17) $f(x) = 2x^2 + 1$

18) $f(x) = -2x^5 - 5x^3$

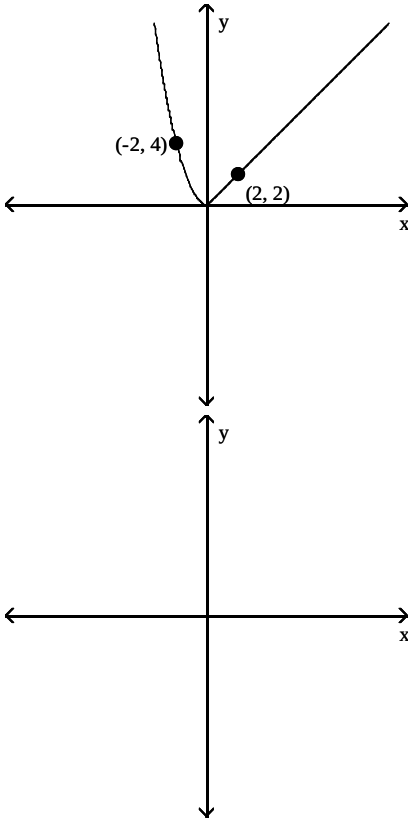
Graph the function.

19) $f(x) = \frac{1}{2}(x + 5)^4 - 1$



The figure below shows the graph of a function y = f(x). Use this graph to solve the problem.

20) Sketch the graph of y = f(–x).



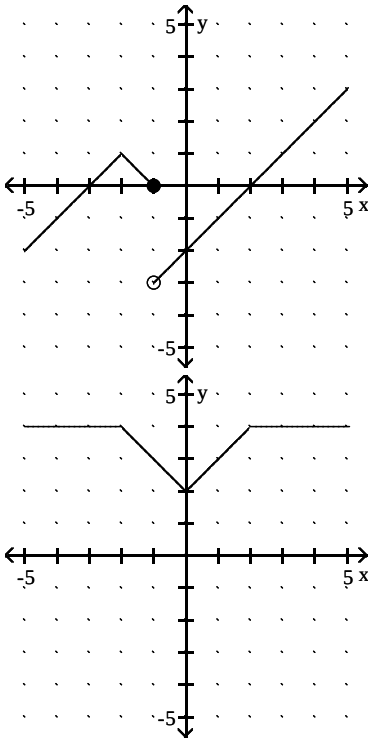
Find the domain and range of the indicated function.

21) Find the domain and range of (f – g)(x) when f(x) = 7x – 7 and g(x) = 5x – 7.

22) Find the domain and range of $\left(\frac{f}{g}\right)(x)$ when f(x) = $9x^2$ – 4x and g(x) = x^2 – 8x – 7.

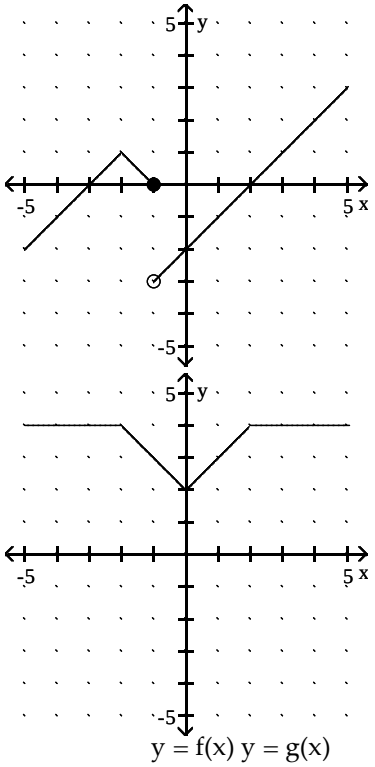
Find the requested value.

23) The graphs of functions f and g are shown. Use these graphs to find f(4) + g(4).



y = f(x) y = g(x)

24) The graphs of functions f and g are shown. Use these graphs to find f(1) * g(1).



y = f(x) y = g(x)

25) Using the given tables find $(g \circ f)(9)$

x	9	12	10	20
f(x)	10	18	49	51

x	11	20	9	10
g(x)	21	17	20	19

Solve the problem.

26) Find $(g \circ f)(-4)$ when $f(x) = -4x - 3$ and $g(x) = 6x^2 + 8x + 1$.

Find the indicated composite for the pair of functions.

27) $(g \circ f)(x)$: $f(x) = \frac{x - 2}{6}$, $g(x) = 6x + 2$

28) $(g \circ f)(x)$: $f(x) = \frac{x - 4}{6}$, $g(x) = 6x + 4$

29) $(g \circ f)(x)$: $f(x) = 4x^2 + 4x + 8$, $g(x) = 4x - 5$

If f is one–to–one, find an equation for its inverse.

30) $f(x) = 3x + 6$

A) Not a one–to–one function

B) $f^{-1}(x) = \frac{x}{3} - 6$

C) $f^{-1}(x) = \frac{x - 6}{3}$

D) $f^{-1}(x) = \frac{x + 6}{3}$

31) $f(x) = x^3 + 4$

A) $f^{-1}(x) = \sqrt[3]{x} - 4$

B) $f^{-1}(x) = \sqrt[3]{x - 4}$

C) $f^{-1}(x) = \sqrt[3]{x + 4}$

D) Not a one–to–one function

32) $f(x) = \frac{7}{x + 9}$

A) $f^{-1}(x) = \frac{-9x + 7}{x}$

B) Not a one–to–one function

C) $f^{-1}(x) = \frac{x}{9 + 7x}$

D) $f^{-1}(x) = \frac{9 + 7x}{x}$

Find the domain and range of the inverse of the given function.

33) $f(x) = \frac{1}{x + 5}$

A) Domain and range are all real numbers

B) Domain all real numbers; range $(-\infty, -5) \cup (-5, \infty)$

C) Domain: $(-\infty, -5) \cup (-5, \infty)$; range $(-\infty, 0) \cup (0, \infty)$

D) Domain: $(-\infty, 0) \cup (0, \infty)$; range $(-\infty, -5) \cup (-5, \infty)$

34) $f(x) = \sqrt{x - 1}$

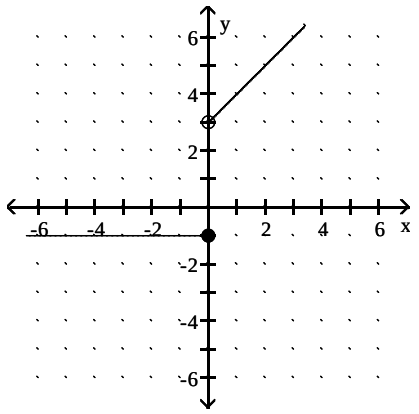
A) Domain: $[1, \infty)$; range: $[0, \infty)$

B) Domain and range: all real numbers

C) Domain: $[0, \infty)$; range: $[1, \infty)$

D) Domain: all real numbers; range: $[1, \infty)$

1)



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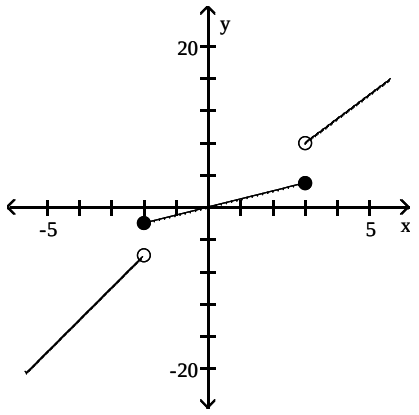

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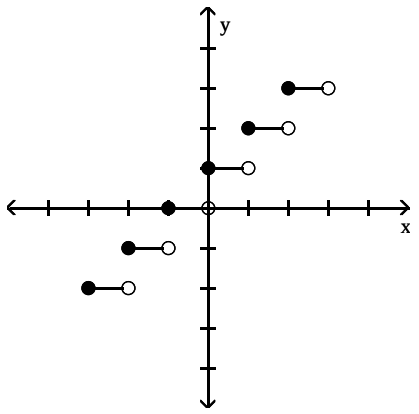
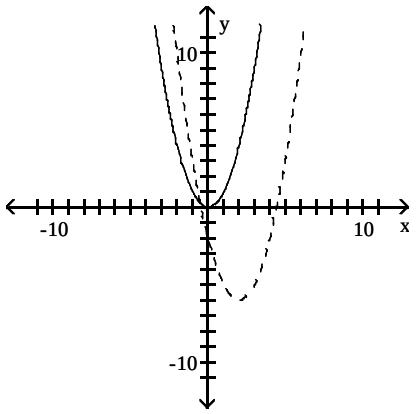


4)



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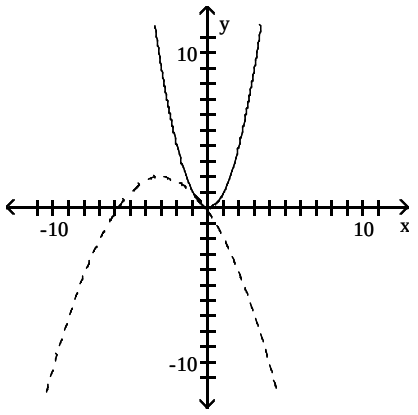

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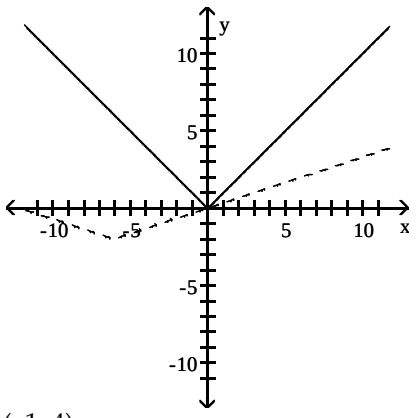
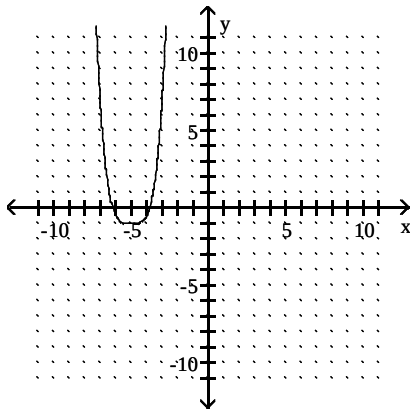


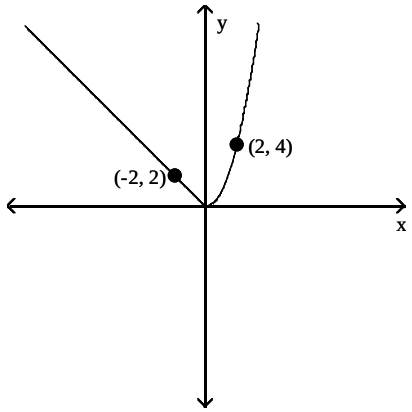
7) (–1, 4)
8) (2, 6)
9) (2, 12)
10) (2, –4)
11) (–2, 4)
12) y–axis only
13) origin only
14) y–axis only
15) origin only
16) none of these
17) Even

18) Odd

19)



20)



21) Domain: $(-\infty, \infty)$; range: $(-\infty, \infty)$

22) Domain: $\left(-\infty, 4-\sqrt{23}\right) \cup \left(4-\sqrt{23}, 4+\sqrt{23}\right) \cup \left(4+\sqrt{23}, \infty\right)$; range: $(-\infty, \infty)$

23) 6

24) –3

25) 19

26) 1119

27) x

28) x

29) $16x^2 + 16x + 27$

30) C

31) B

32) A

33) D

34) C