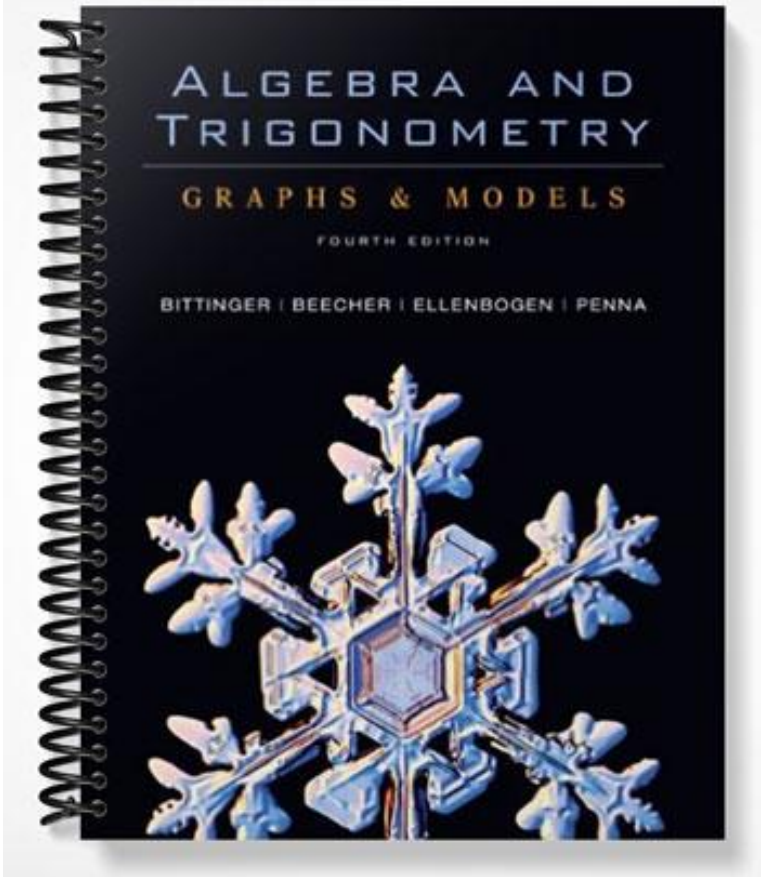
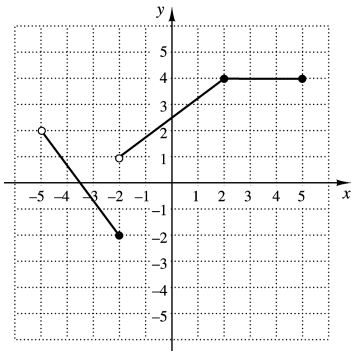
TEST BANK


ALGEBRA AND TRIGONOMETRY
GRAPHS & MODELS
FOURTH EDITION
BITTINGER | BEECHER | ELLENBOGEN | PENNA

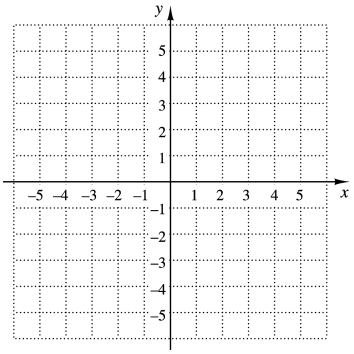
CHAPTER 2 **NAME**_____

TEST FORM A **CLASS_____SCORE_____GRADE_____**

1. Determine the intervals on which the function is:
   a) increasing,
   b) decreasing, and
   c) constant.



2. Graph the function $f(x) = x^2 - 4$. Estimate the intervals on which the function is increasing or decreasing and estimate any relative maxima or minima.

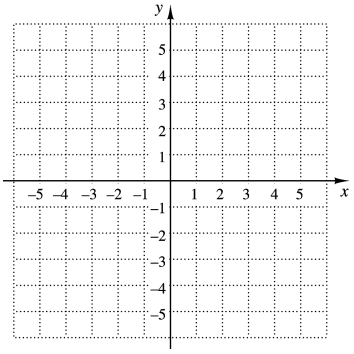


3. Use a graphing calculator to find the intervals on which the function $f(x) = x^3 - 4x$ is increasing or decreasing and find any relative maxima or minima.

4. The length of a rectangular parking lot is 40 ft more than the width. If the parking lot is w feet wide, express its area as a function of the width.

5. Graph

$$f(x) = \begin{cases} -2x, \text{ for } x < -2, \\ -x^2, \text{ for } -2 \le x \le 2, \\ 5, \text{ for } x > 2. \end{cases}$$



6. For the function in Exercise 5, find $f\left(-\frac{3}{4}\right)$, $f(4)$, and $f(-5)$.

ANSWERS

1. a) _____
   b) _____
   c) _____

2. See graph.

3. _____

4. _____

5. See graph.

6. _____

CHAPTER 2 **NAME**_____

TEST FORM A

ANSWERS

7. _____
8. _____
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10. _____
11. _____
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13. _____
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16. _____
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22. _____
23. _____

Given that $f(x) = x^2 - 3x + 1$ and $g(x) = \sqrt{4 - x}$, find each of the following if it exists.

7. $(f + g)(3)$ 8. $(f / g)(4)$

For $f(x) = 2x + 1$ and $g(x) = \sqrt{x - 3}$, find each of the following.

9. The domain of f 10. The domain of g

11. The domain of $f + g$ 12. The domain of f/g

13. $(f - g)(x)$ 14. $(fg)(x)$

For each function, construct and simplify the different quotient.

15. $f(x) = \frac{2}{3}x - 8$ 16. $f(x) = 6 - x^2$

Given that $f(x) = x^2 + 2$ and $g(x) = 2x - 5$, find each of the following.

17. $(f \circ g)(1)$ 18. $(g \circ f)(-3)$

For $f(x) = \sqrt{x + 2}$ and $g(x) = x - 8$:

19. Find $(f \circ g)(x)$ and $(g \circ f)(x)$.

20. Find the domain of $(f \circ g)(x)$ and $(g \circ f)(x)$.

21. Find $f(x)$ and $g(x)$ such that $h(x) = (f \circ g)(x) = \sqrt[3]{3x + 1}$.

22. Determine whether the graph of $y = \frac{3x}{x^2 - 4}$ is symmetric with respect to the x-axis, the y-axis, and/or the origin.

23. Test algebraically whether the function $f(x) = 5x - x^3$ is even, odd, or neither even nor odd. Show your work.

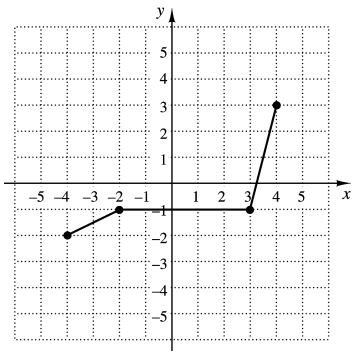
CHAPTER 2 **NAME**_____

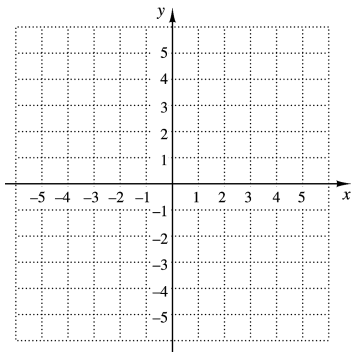
TEST FORM A

---

24. Write an equation for a function that has the shape of $y = x^2$, but shifted right 5 units and down 3 units.

25. The graph of a function $y = f(x)$ is shown below. No formula for f is given. Make a graph of $y = f(-x)$.





26. Find an equation of variation in which y varies inversely as x, and $y = 18$ when $x = 5$.

27. Find an equation of variation in which y varies directly as x, and $y = 0.8$ when $x = 5$.

28. Find an equation of variation where y varies jointly as x and z and inversely as the square of w, and $y = 20$ when $x = 0.5$, $z = 4$, and $w = 5$.

29. The volume of a 6-in. tall cone varies directly as the square of the radius. The volume is 14.1 in^3 when the radius is 1.5 in. Find the volume when the radius is 3 in.

ANSWERS

24. _____

25. See graph.

26. _____

27. _____

28. _____

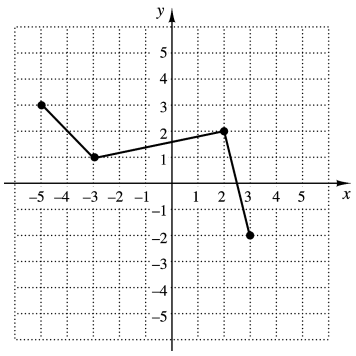
29. _____

ANSWERS

30. _____

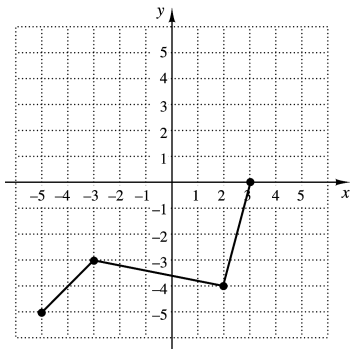
31. _____

30. The graph of the function f is shown to the right.

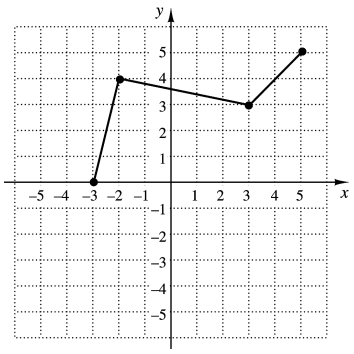


The graph of $g(x) = -f(x) + 2$ is which of the following?

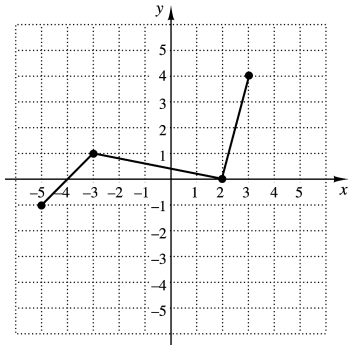
A.



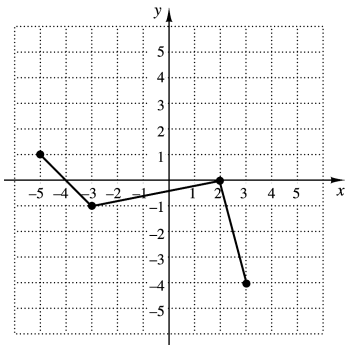
B.



C.



D.

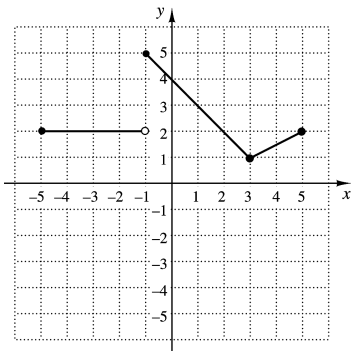


31. If (–3, 6) is a point in the graph of $y = f(x)$, what point do you know is on the graph of $y = f(x+3)$?

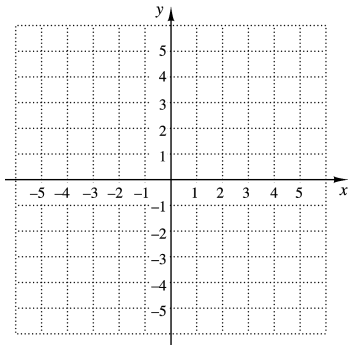
CHAPTER 2 **NAME**_____

TEST FORM B **CLASS_____SCORE_____GRADE_____**

1. Determine the intervals on which the function is:
   a) increasing,
   b) decreasing, and
   c) constant.



2. Graph the function $f(x) = 5 - |x|$. Estimate the intervals on which the function is increasing or decreasing and estimate any relative maxima or minima.

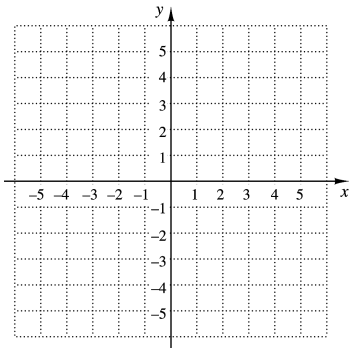


3. Use a graphing calculator to find the intervals on which the function $f(x) = x^3 - 2x^2$ is increasing or decreasing and find any relative maxima or minima.

4. The length of a rectangular picture frame is 10.5 in. greater than the width. If the picture frame is *w* feet wide, express its area as a function of the width.

5. Graph

$$f(x) = \begin{cases} \sqrt{x+5}, \text{ for } x < -1, \\ x^2, \text{ for } -1 \le x \le 2, \\ -|x|, \text{ for } x > 2. \end{cases}$$



6. For the function in Exercise 5, find $f(-4)$, $f\left(\frac{1}{2}\right)$, and $f(6)$.

ANSWERS

1. a) _____
   b) _____
   c) _____

2. See graph.

3. _____

4. _____

5. See graph.

6. _____

CHAPTER 2 **NAME**_____

TEST FORM B

ANSWERS

7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____

Given that $f(x) = x^2 + 2x + 4$ and $g(x) = \sqrt{9 - x}$, find each of the following if it exists.

7. $(f + g)(5)$ 8. $(f / g)(0)$

For $f(x) = x^2$ and $g(x) = \sqrt{2x}$, find each of the following.

9. The domain of f 10. The domain of g

11. The domain of $f + g$ 12. The domain of f/g

13. $(f - g)(x)$ 14. $(fg)(x)$

For each function, construct and simplify the different quotient.

15. $f(x) = 3x - 2$ 16. $f(x) = 5x^2 + 2$

Given that $f(x) = 4 - x^2$ and $g(x) = \frac{1}{2}x + 2$, find each of the following.

17. $(f \circ g)(2)$ 18. $(g \circ f)(-3)$

For $f(x) = 3x - 2$ and $g(x) = \sqrt{x}$:

19. Find $(f \circ g)(x)$ and $(g \circ f)(x)$.

20. Find the domain of $(f \circ g)(x)$ and $(g \circ f)(x)$.

21. Find $f(x)$and $g(x)$ such that $h(x) = (f \circ g)(x) = \frac{5}{2x+1}$.

22. Determine whether the graph of $y = x^4 - 2x^2$ is symmetric with respect to the x-axis, the y-axis, and/or the origin.

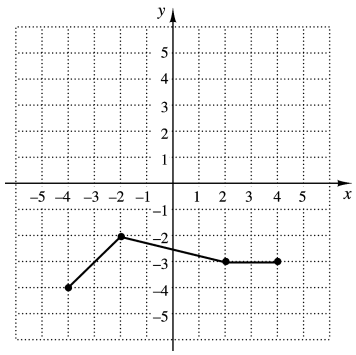
23. Test algebraically whether the function $f(x) = \frac{x^2}{x-1}$ is even, odd, or neither even nor odd. Show your work.

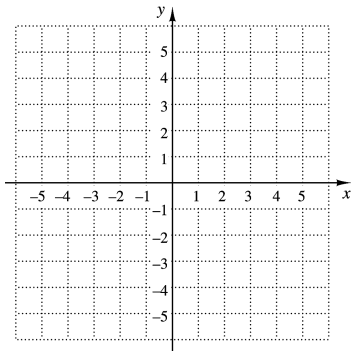
CHAPTER 2 **NAME**_____

TEST FORM B

24. Write an equation for a function that has the shape of $y = |x|$, but shifted right 4 units and up 2 units.

25. The graph of a function $y = f(x)$ is shown below. No formula for f is given. Make a graph of $y = f(x-1)$.





26. Find an equation of variation in which y varies inversely as x, and $y = 24$ when $x = 3$.

27. Find an equation of variation in which y varies directly as x, and $y = 14$ when $x = 6$.

28. Find an equation of variation where y varies jointly as the square of x and the square of z and inversely as w, and $y = 50$ when $x = 2$, $z = 3$, and $w = 10$.

29. The current I in an electrical conductor varies inversely as the resistance R of the conductor. Suppose I is 0.2 ampere when the resistance is 200 ohms. Find the current when the resistance is 250 ohms.

ANSWERS

24. _____

25. See graph.

26. _____

27. _____

28. _____

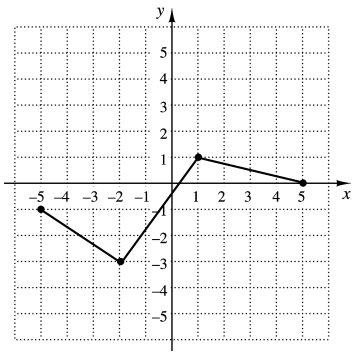
29. _____

ANSWERS

30. _____

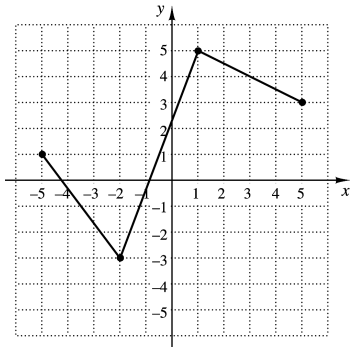
31. _____

30. The graph of the function f is shown to the right.

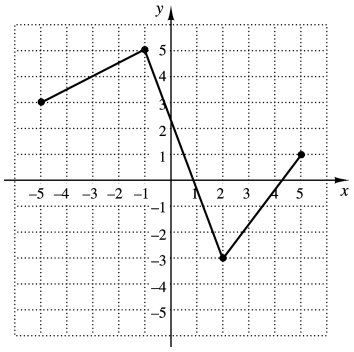


The graph of $g(x) = -2f(x) - 3$ is which of the following?

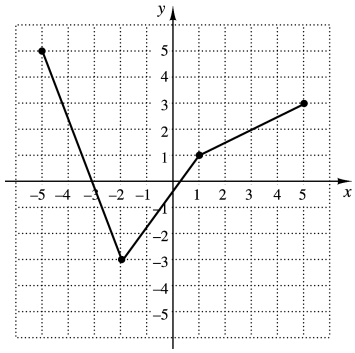
A.



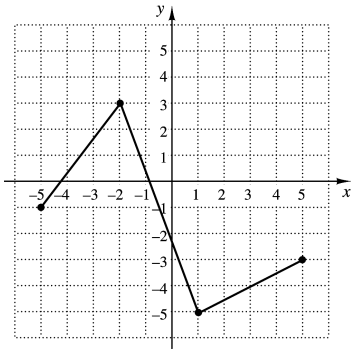
B.



C.



D.

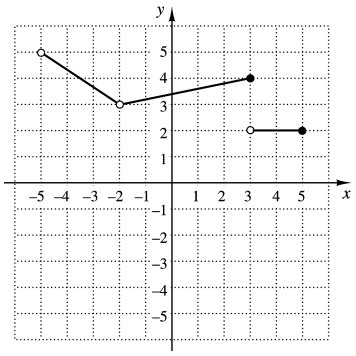


31. If (4, –6) is a point in the graph of $y = f(x)$, what point do you know is on the graph of $y = f(-2x)$?

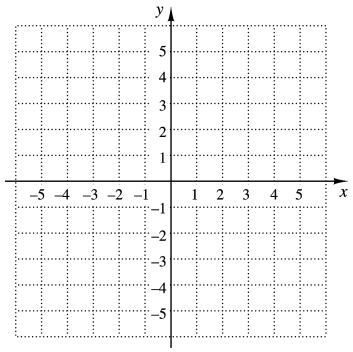
CHAPTER 2 **NAME**_____

TEST FORM C **CLASS_____SCORE_____GRADE_____**

1. Determine the intervals on which the function is:
   a) increasing,
   b) decreasing, and
   c) constant.



2. Graph the function $f(x) = 3 - x^2$. Estimate the intervals on which the function is increasing or decreasing and estimate any relative maxima or minima.

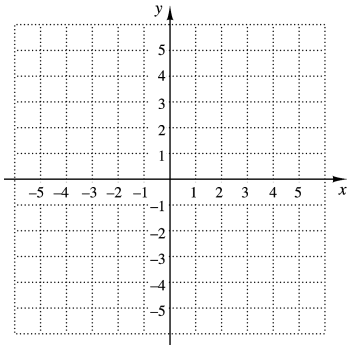


3. Use a graphing calculator to find the intervals on which the function $f(x) = x^3 - x$ is increasing or decreasing and find any relative maxima or minima.

4. The length of a rectangular table cloth is 2 ft more than the width. If the table cloth is *w* feet wide, express the perimeter as a function of the width.

5. Graph

$$f(x) = \begin{cases} |x|, \text{ for } x < -2, \\ x^2, \text{ for } -2 \le x \le 1, \\ -3x, \text{ for } x > 1. \end{cases}$$



6. For the function in Exercise 5, find $f(-5)$, $f\left(\frac{1}{2}\right)$, and $f(4)$.

ANSWERS

1. a) _____
   b) _____
   c) _____

2. See graph.

3. _____

4. _____

5. See graph.

6. _____

CHAPTER 2 **NAME**_____

TEST FORM C

ANSWERS

7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
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16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____

Given that $f(x) = x^2 + 2x - 8$ and $g(x) = \sqrt{x+4}$, find each of the following if it exists.

7. $(f+g)(-3)$ 8. $(g/f)(-4)$

For $f(x) = -2x + 4$ and $g(x) = \dfrac{1}{x}$, find each of the following.

9. The domain of f 10. The domain of g

11. The domain of $f + g$ 12. The domain of g/f

13. $(f-g)(x)$ 14. $(fg)(x)$

For each function, construct and simplify the different quotient.

15. $f(x) = 4 - \dfrac{1}{2}x$ 16. $f(x) = x^3 - x$

Given that $f(x) = (x-1)^2$ and $g(x) = 2x + 3$, find each of the following.

17. $(f \circ g)(-1)$ 18. $(g \circ f)(4)$

For $f(x) = x^2$ and $g(x) = x - 3$:

19. Find $(f \circ g)(x)$ and $(g \circ f)(x)$.

20. Find the domain of $(f \circ g)(x)$ and $(g \circ f)(x)$.

21. Find $f(x)$ and $g(x)$ such that $h(x) = (f \circ g)(x) = \sqrt{x^2 + 5}$.

22. Determine whether the graph of $y = 3x^6 - 2x^4$ is symmetric with respect to the x-axis, the y-axis, and/or the origin.

23. Test algebraically whether the function $f(x) = -3x + 1$ is even, odd, or neither even nor odd. Show your work.

CHAPTER 2 **NAME**_____

TEST FORM C

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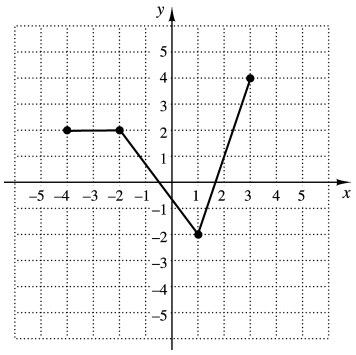
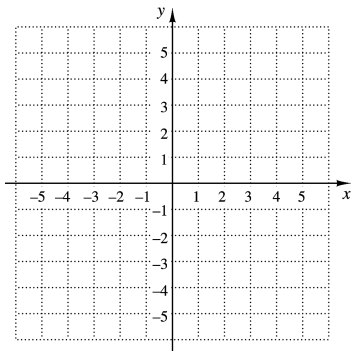
24. Write an equation for a function that has the shape of $y = x^3$, but shifted left 4 units and up 6 units.

25. The graph of a function $y = f(x)$ is shown below. No formula for f is given. Make a graph of $y = f(x-2)$.





26. Find an equation of variation in which y varies inversely as x, and $y = 0.6$ when $x = 2$.

27. Find an equation of variation in which y varies directly as x, and $y = 1.5$ when $x = 0.3$.

28. Find an equation of variation where y varies jointly as x and z and inversely as the square root of w, and $y = 20$ when $x = 5$, $z = 2$, and $w = 25$.

29. The intensity I of a light from a light bulb varies inversely as the square of the distance d from the bulb. Suppose I is 60 W/m^2 (watts per square meter) when the distance is 5 m. Find the intensity at 20 m.

ANSWERS

24. _____

25. See graph.

26. _____

27. _____

28. _____

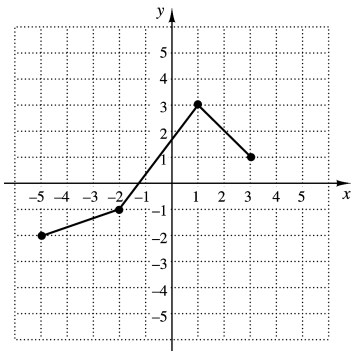
29. _____

ANSWERS

30. _____

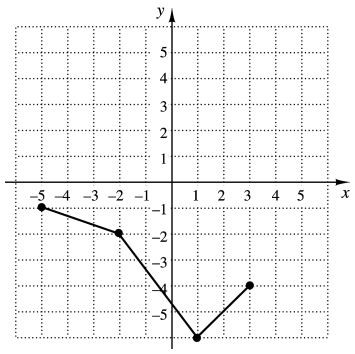
31. _____

30. The graph of the function f is shown to the right.

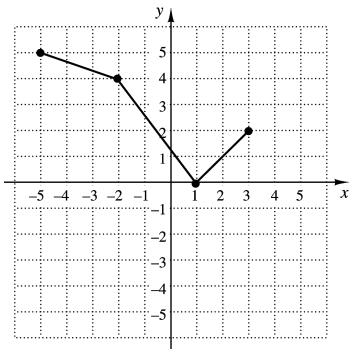


The graph of $g(x) = -f(x) - 3$ is which of the following?

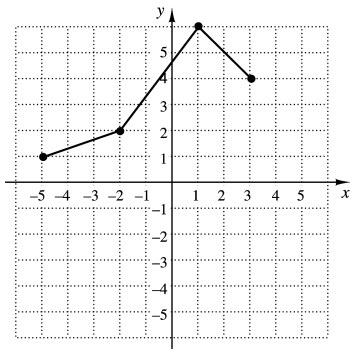
A.



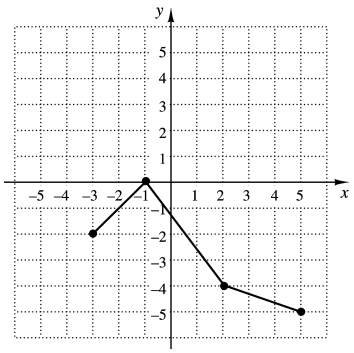
B.



C.



D.

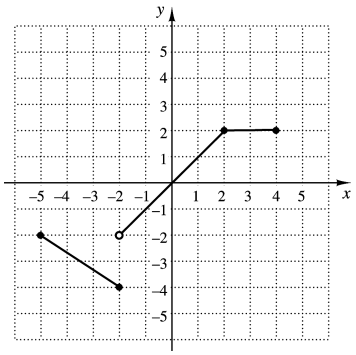


31. If (–6, 3) is a point in the graph of $y = f(x)$, what point do you know is on the graph of $y = f(-3x)$?

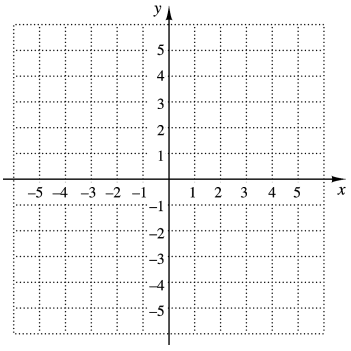
CHAPTER 2 **NAME**_____

TEST FORM D **CLASS_____SCORE_____GRADE_____**

1. Determine the intervals on which the function is:
   a) increasing,
   b) decreasing, and
   c) constant.



2. Graph the function $f(x) = |x| + 2$. Estimate the intervals on which the function is increasing or decreasing and estimate any relative maxima or minima.

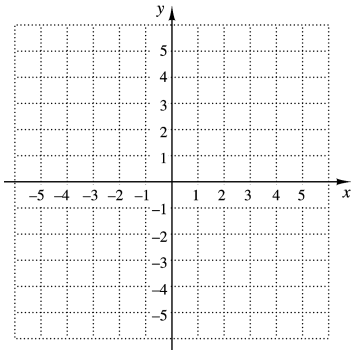


3. Use a graphing calculator to find the intervals on which the function $f(x) = x^3 + 3x^2$ is increasing or decreasing and find any relative maxima or minima.

4. The length of a rectangular board game is $2\frac{1}{2}$ times the width. If the board game is w cm wide, express the perimeter as a function of the width.

5. Graph

$$f(x) = \begin{cases} x + 2, \text{ for } x < -2, \\ x^2 - 3, \text{ for } -2 \le x \le 2, \\ \sqrt{x}, \text{ for } x > 2. \end{cases}$$



6. For the function in Exercise 5, find $f(-3)$, $f\left(\frac{2}{3}\right)$, and $f(4)$.

ANSWERS

1. a) _____
   b) _____
   c) _____

2. See graph.

3. _____

4. _____

5. See graph.

6. _____

CHAPTER 2 **NAME**_____

TEST FORM D

ANSWERS

7. _____
8. _____
9. _____
10. _____
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13. _____
14. _____
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23. _____

Given that $f(x) = x^2 - 2x + 1$ and $g(x) = \sqrt{x+6}$, find each of the following if it exists.

7. $(f+g)(-1)$ 8. $(g/f)(3)$

For $f(x) = \dfrac{1}{x^2}$ and $g(x) = x + 4$, find each of the following.

9. The domain of f 10. The domain of g

11. The domain of $f + g$ 12. The domain of f/g

13. $(f-g)(x)$ 14. $(fg)(x)$

For each function, construct and simplify the different quotient.

15. $f(x) = -6x + 2$ 16. $f(x) = 2x^2 + 6$

Given that $f(x) = 2x + 1$ and $g(x) = \sqrt{x+3}$, find each of the following.

17. $(f \circ g)(-2)$ 18. $(g \circ f)(6)$

For $f(x) = \sqrt{x-5}$ and $g(x) = x + 2$:

19. Find $(f \circ g)(x)$ and $(g \circ f)(x)$.

20. Find the domain of $(f \circ g)(x)$ and $(g \circ f)(x)$.

21. Find $f(x)$ and $g(x)$ such that $h(x) = (f \circ g)(x) = \dfrac{4}{x-6}$.

22. Determine whether the graph of $y = x^3 - 2x$ is symmetric with respect to the x-axis, the y-axis, and/or the origin.

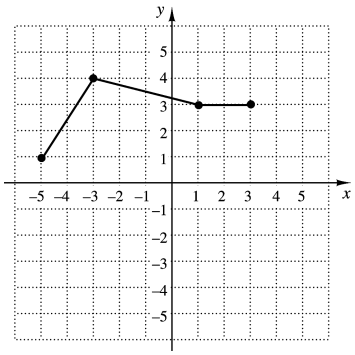
23. Test algebraically whether the function $f(x) = 8x - |x|$ is even, odd, or neither even nor odd. Show your work.

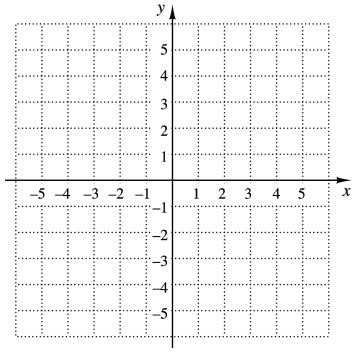
CHAPTER 2 **NAME**_____

TEST FORM D

24. Write an equation for a function that has the shape of $y = \sqrt{x}$, but shifted left 5 units and down 3 units.

25. The graph of a function $y = f(x)$ is shown below. No formula for f is given. Make a graph of $y = -f(x)$.





26. Find an equation of variation in which y varies inversely as x, and $y = 15$ when $x = 6$.

27. Find an equation of variation in which y varies directly as x, and $y = 0.5$ when $x = 1.5$.

28. Find an equation of variation where y varies jointly as x and the square of z and inversely as w, and $y = 40$ when $x = 100$, $z = 0.1$, and $w = 2$.

29. The surface area of a balloon varies directly as the square of its radius. The area is 78.5 cm^2 when the radius is 2.5 cm. Find the area when the radius is 3 cm.

ANSWERS

24. _____

25. See graph.

26. _____

27. _____

28. _____

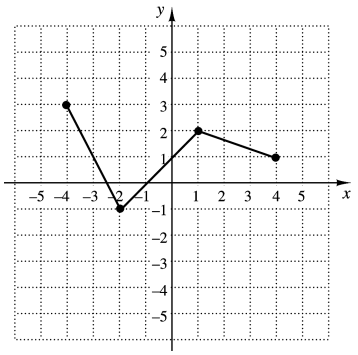
29. _____

ANSWERS

30. _____

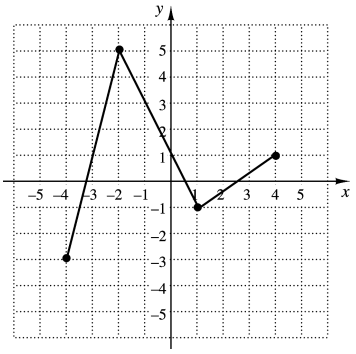
31. _____

30. The graph of the function f is shown to the right.

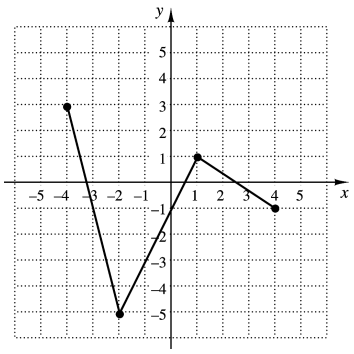


The graph of $g(x) = -2f(x) + 3$ is which of the following?

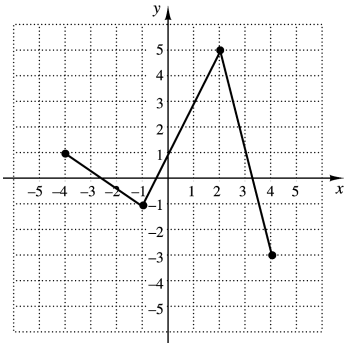
A.



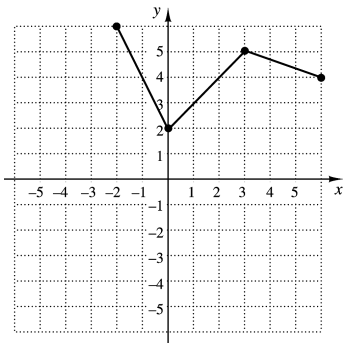
B.



C.



D.

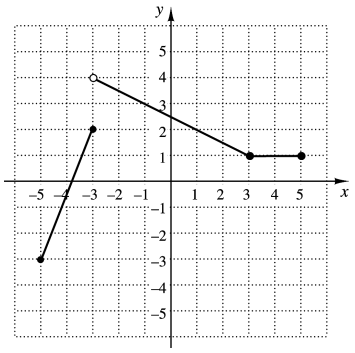


31. If (–10, 10) is a point in the graph of $y = f(x)$, what point do you know is on the graph of $y = f\left(\frac{1}{2}x\right)$?

CHAPTER 2 **NAME**_____

TEST FORM E **CLASS_____SCORE_____GRADE_____**

1. Determine on which intervals the function is decreasing.



a) $(-5,-3)$ b) $(-3,4)$ c) $(4,1)$ d) $(-3,3)$

2. Use a graphing calculator to find any relative maxima or minima of $f(x)=2x^3+3x^2-12x$.

a) Relative maximum 20 at $x = -2$; relative minimum 1 at $x = -7$
b) Relative maximum 20 at $x = -2$; relative minimum -7 at $x = 1$
c) Relative maximum 20 at $x = -2$; relative minimum 0 at $x = 0$
d) There are no relative extrema.

3. The width of a rectangular blanket is $\frac{2}{3}$ of the length l. Express the area of the blanket as a function of l.

a) $A(l)=\frac{2}{3}l^2$ b) $A(l)=\frac{3}{2}l^2$ c) $A(l)=\frac{10}{3}l$ d) $A(l)=\frac{5}{3}l^2$

Use the following function for Exercises 4 and 5.

$$f(x)=\begin{cases}2x^2, \text{ for } x\le -1,\\ \sqrt{x+3}, \text{ for } -1<x\le 6,\\ |x-4|, \text{ for } x>6.\end{cases}$$

4. Find $f(-1)$.

a) –2 b) $\sqrt{2}$ c) 2 d) 4

5. Find $f(5)$.

a) 1 b) 50 c) $\sqrt{5}$ d) $\sqrt{8}$

6. For $f(x)=x^2-3x-2$ and $g(x)=4x+1$, find $(f+g)(2)$.

a) –36 b) 5 c) 17 d) 4

ANSWERS

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

CHAPTER 2 **NAME**_____

TEST FORM E

ANSWERS

7. _____

8. _____

9. _____

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12. _____

13. _____

14. _____

7. For $f(x)=x^2-5$ and $g(x)=\sqrt{x}$, find $h(x)=(fg)(x)$.
   a) $h(x)=x^2-5+\sqrt{x}$ b) $h(x)=x-5$
   c) $h(x)=x^2\sqrt{x}-5\sqrt{x}$ d) $h(x)=\sqrt{x^2-5}$

8. For $f(x)=x^2-5$ and $g(x)=\sqrt{x}$, find the domain of *f*/*g*.
   a) $(-\infty,0)\cup(0,\infty)$
   b) $[0,\infty)$
   c) $(-\infty,-\sqrt{5})\cup(-\sqrt{5},\sqrt{5})\cup(\sqrt{5},\infty)$
   d) $(0,\infty)$

9. Construct and simplify the difference quotient for $f(x)=3+5x$.
   a) $5h$ b) 5 c) $3+5x-5h$ d) 3

10. Construct and simplify the difference quotient for $f(x)=2x^2-3x+1$.
   a) $4x+2h-3$ b) $4h^2-3h$
   c) $2x+h$ d) $4xh+2h^2-3h$

11. For $f(x)=x+4$ and $g(x)=2x^2$, find $h(x)=(g\circ f)(x)$.
   a) $h(x)=2x^2+4$ b) $h(x)=2x^3+8x^2$
   c) $h(x)=2x^2+16x+32$ d) $h(x)=2x^2+x+4$

12. For $f(x)=\sqrt{x+4}$ and $g(x)=2x^2$, find the domain of $(f\circ g)(x)$.
   a) $[0,\infty)$ b) $[-4,\infty)$ c) $(-\infty,\infty)$ d) $[-4,4]$

13. Which of the following functions is symmetric with respect to the *y*-axis?
   a) $f(x)=5-x^2$ b) $f(x)=x$
   c) $f(x)=5x^3$ d) $f(x)=\sqrt{x}$

14. Which of the following functions is even?
   a) $y=16-x^2$ b) $y=2x^3$
   c) $y=4x-6$ d) $y=\sqrt{x}$

CHAPTER 2 **NAME**_____

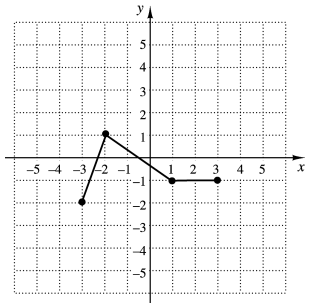
TEST FORM E

15. Write an equation for a function that has the shape of $y = |x|$, but is shifted right 2 units and down 6 units.

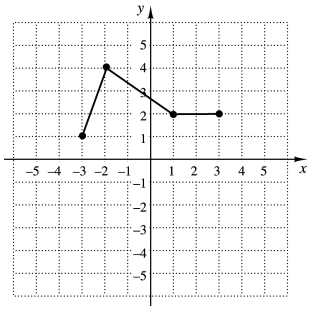
a) $f(x) = |x + 2| - 6$ b) $f(x) = |x - 2| + 6$

c) $f(x) = |x + 2| + 6$ d) $f(x) = |x - 2| - 6$

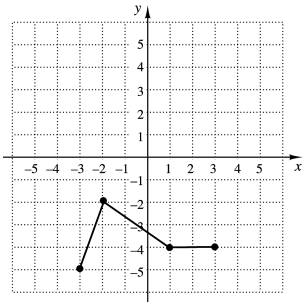
16. The graph of $y = f(x)$ is given. Which graph below represents the graph of $y = f(x) + 3$?



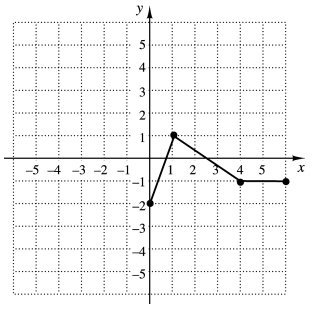
a)



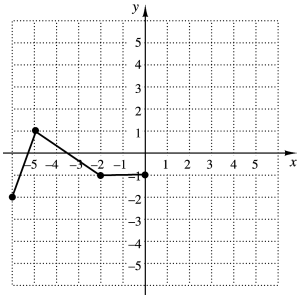
b)



c)



d)



17. Find an equation of variation in which y varies directly as x and $y = 15$ and $x = 10$.

a) $y = \frac{2}{3}x$ b) $y = \frac{3}{2}x$ c) $y = \frac{150}{x}$ d) $y = 6x$

18. If y varies inversely as x and $y = 1.5$ when $x = 8$, find y when $x = 20$.

a) $\frac{5}{3}$ b) $\frac{15}{4}$ c) $\frac{320}{3}$ d) $\frac{3}{5}$

ANSWERS

15. _____

16. _____

17. _____

18. _____

CHAPTER 2 **NAME**_____

TEST FORM E

ANSWERS

19. _____

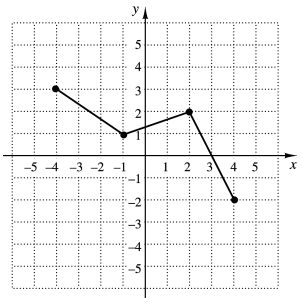
20. _____

21. _____

19. d varies inversely as w and directly as the square of v. If $d = 40$ when $w = 6$ and $v = 2$, find d when $w = 9$ and $v = 4$.

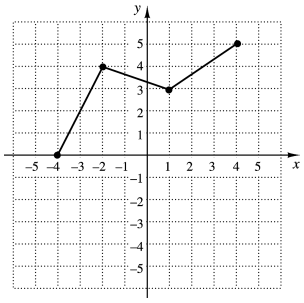
a) 240 b) $\frac{320}{3}$ c) 15 d) $\frac{40}{3}$

20. The graph of the function f is shown to the right.

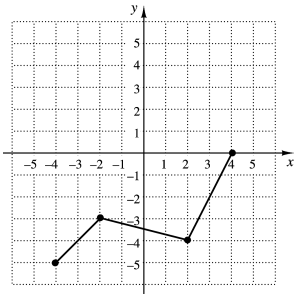


The graph of $g(x) = -f(x) + 2$ is which of the following?

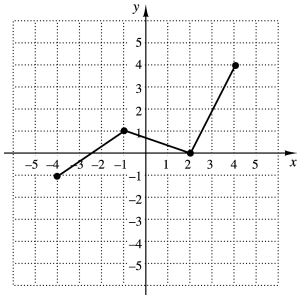
a)



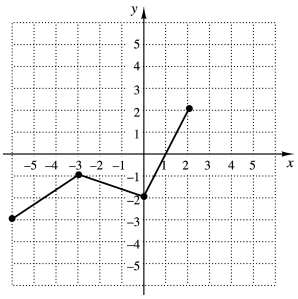
b)



c)



d)



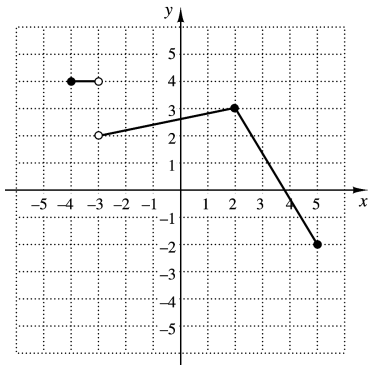
21. If (–1, –4) is a point on the graph of $y = f(x)$, what point do you know is on the graph of $y = f\left(\frac{1}{2}x\right)$?

a) (–1, –2) b) $\left(-\frac{1}{2}, -4\right)$ c) (–2, –4) d) $\left(-\frac{1}{2}, -2\right)$

CHAPTER 2 **NAME**_____

TEST FORM F **CLASS_____SCORE_____GRADE_____**

1. Determine on which intervals the function is increasing.



a) $(-2, 4)$ b) $(2, 3)$ c) $(-3, 2)$ d) $(2, 5)$

2. Use a graphing calculator to find any relative maxima or minima of $f(x) = x^3 - 6x^2$.
   a) Relative maximum 0 at $x = 0$; relative minimum 4 at $x = -32$
   b) Relative maximum 0 at $x = 0$; relative minimum -32 at $x = 4$
   c) Relative maximum 32 at $x = 4$; relative minimum 0 at $x = 0$
   d) There are no relative extrema.

3. The width of a rectangular blanket is 4 less than twice of the length l. Express the area of the blanket as a function of l.
   a) $A(l) = 4l - 2l^2$ b) $A(l) = 2l^2 - 4$
   c) $A(l) = 3l - 4$ d) $A(l) = 2l^2 - 4l$

Use the following function for Exercises 4 and 5.

$$f(x) = \begin{cases} x^2 + 1, \text{ for } x \le -3, \\ |x - 6|, \text{ for } -3 < x \le 1, \\ \sqrt{3x}, \text{ for } x > 1. \end{cases}$$

4. Find $f(-1)$.
   a) 2 b) 0 c) 7 d) 5

5. Find $f(2)$.
   a) 5 b) $\sqrt{6}$ c) 1 d) 4

6. For $f(x) = x^2 + 4x - 5$ and $g(x) = -3x + 2$, find $(f + g)(-1)$.
   a) –3 b) –5 c) –9 d) –40

ANSWERS

1. _____
2. _____
3. _____
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CHAPTER 2 **NAME**_____

TEST FORM F

ANSWERS

7. _____

8. _____

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10. _____

11. _____

12. _____

13. _____

14. _____

7. For $f(x)=3x-4$ and $g(x)=\sqrt{x}$, find $h(x)=(fg)(x)$.

a) $h(x)=3x-4+\sqrt{x}$ b) $h(x)=\sqrt{x}(3x-4)$

c) $h(x)=3\sqrt{x}-4$ d) $h(x)=\sqrt{3x-4}$

8. For $f(x)=x^2-4$ and $g(x)=\sqrt{3-x}$, find the domain of *g/f*.

a) $(-\infty, 3)$

b) $(-\infty, 3]$

c) $(-\infty, -2)\cup(-2, 2)\cup(2, \infty)$

d) $(-\infty, -2)\cup(-2, 2)\cup(2, 3]$

9. Construct and simplify the difference quotient for $f(x)=-7x+3$.

a) 3 b) –7 c) $-7h$ d) $3-7x-7h$

10. Construct and simplify the difference quotient for $f(x)=2x^2-x$.

a) $2h^2+h-4xh$ b) $-4x+2h+1$

c) $4x+2h-1$ d) $4x+2h-1-\dfrac{2x}{h}$

11. For $f(x)=2x$ and $g(x)=x^2$, find $h(x)=(g\circ f)(x)$.

a) $h(x)=2x^2$ b) $h(x)=x^2+2x$

c) $h(x)=2x^3$ d) $h(x)=4x^2$

12. For $f(x)=\dfrac{1}{4-x}$ and $g(x)=x^2$, find the domain of $(f\circ g)(x)$.

a) $(-\infty, 4)\cup(4, \infty)$ b) $(-\infty, -2)\cup(-2, 2)\cup(2, \infty)$

c) $(-\infty, 2)\cup(2, \infty)$ d) $(-\infty, 16)\cup(16, \infty)$

13. Which of the following is symmetric with respect to the origin?

a) $y=(x-4)^2$ b) $x=y^2$

c) $y=-|x|-2$ d) $y=x-x^3$

14. Which of the following functions is even?

a) $f(x)=2x+8$ b) $f(x)=\sqrt{4-x^2}$

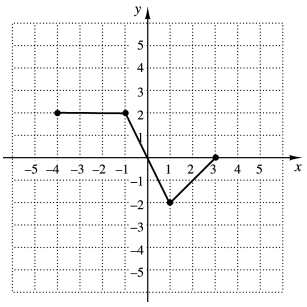
c) $f(x)=x^2+x$ d) $f(x)=\sqrt[4]{x}$

15. Write an equation for a function that has the shape of $y = x^2$, but is shifted left 3 units and up 4 units.

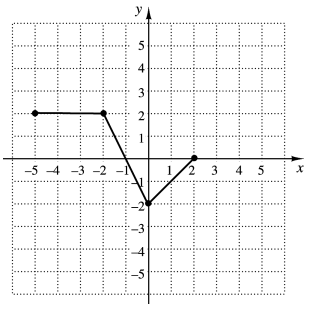
a) $f(x) = (x+3)^2 + 4$ b) $f(x) = (x-3)^2 + 4$

c) $f(x) = (x-3)^2 - 4$ d) $f(x) = (x+3)^2 - 4$

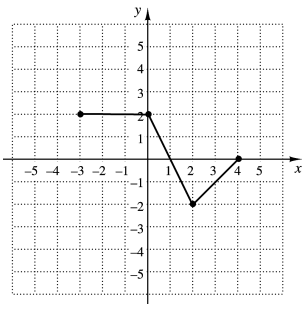
16. The graph of $y = f(x)$ is given. Which graph below represents the graph of $y = f(x) - 1$?



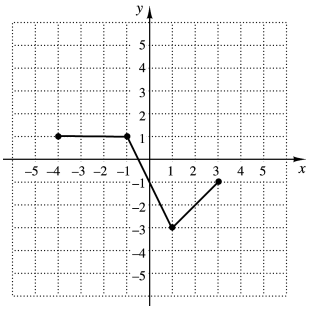
a)



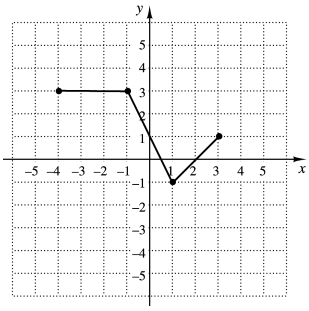
b)



c)



d)



17. Find an equation of variation in which y varies directly as x and $y = 0.5$ and $x = 4$.

a) $y = \frac{1}{8}x$ b) $y = 2x$ c) $y = 8x$ d) $y = \frac{2}{x}$

18. If y varies inversely as x and $y = 4$ when $x = 0.2$, find y when $x = 8$.

a) 160 b) 10 c) 0.1 d) 0.4

ANSWERS

15. _____

16. _____

17. _____

18. _____

ANSWERS

19. _____

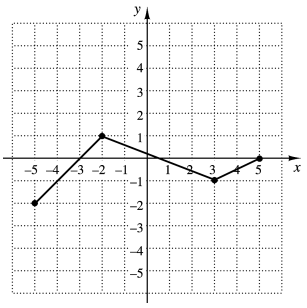
20. _____

21. _____

19. p varies directly as the square of m and inversely as n. If $p = 120$ when $m = 4$ and $n = 5$, find p when $m = 2$ and $n = 10$.

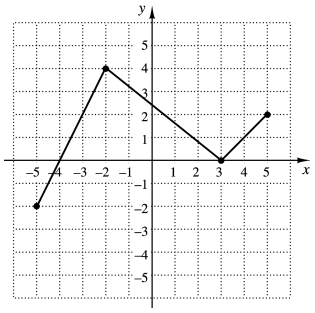
a) $\frac{3}{4}$ b) 120 c) 960 d) 15

20. The graph of the function f is shown to the right.

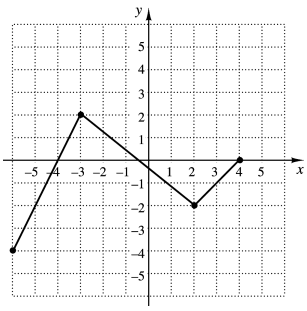


The graph of $g(x) = 2f(x) + 1$ is which of the following?

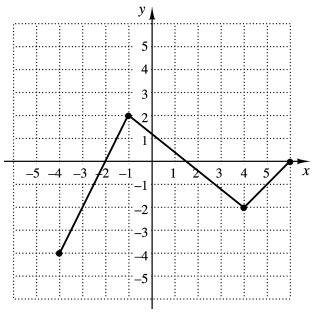
a)



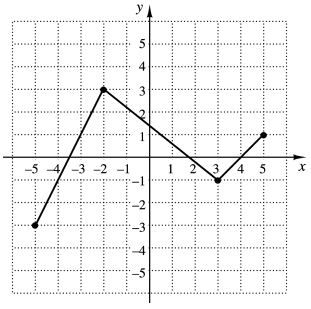
b)



c)



d)



21. If (–4, 2) is a point on the graph of $y = f(x)$, what point do you know is on the graph of $y = 3f(x)$?

a) (–4, 6) b) (–12, 2) c) (–12, 6) d) (–4, 5)