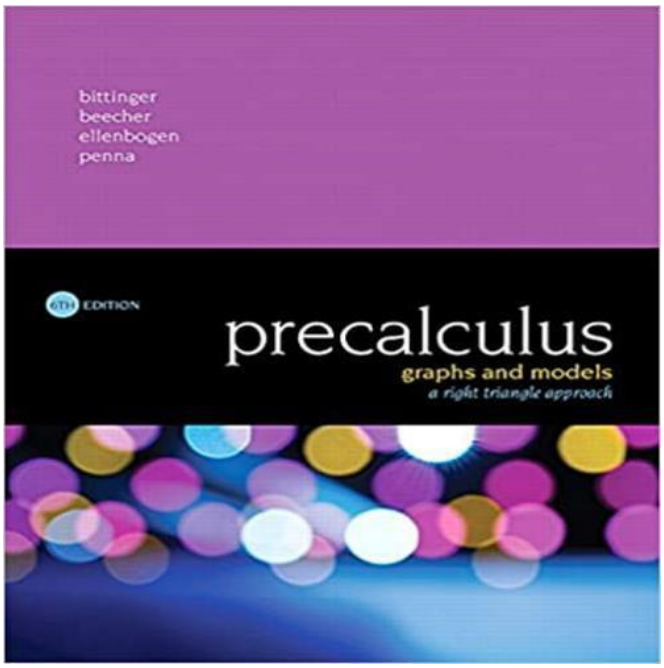
CHAPTER 2 **NAME**_____

TEST FORM A

Test Bank for Precalculus Graphs and Models A Right Triangle Approach 6th Edition Bittinger Beecher Ellenbogen Penna 0134179056 9780134179056



Full link

download: Test

Bank:

https://testbankpack.com/p/test-bank-for-precalculus-graphs-and-models-a-right-triangle-approach-6th-edition-bittinger-beecher-ellenbogen-penna-0134179056-9780134179056/

Solution

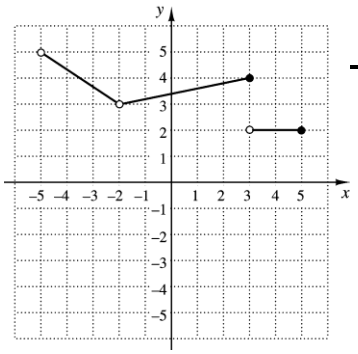
Manual:

https://testbankpack.com/p/solution-manual-for-precalculus-graphs-and-models-a-right-triangle-approach-6th-edition-bittinger-beecher-ellenbogen-penna-0134179056-9780134179056/

CHAPTER 2

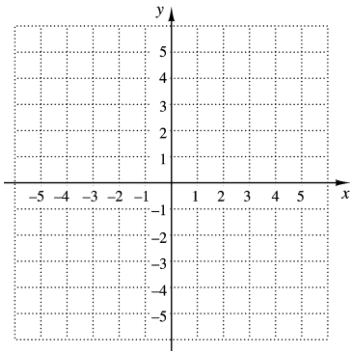
TEST FORM A

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.

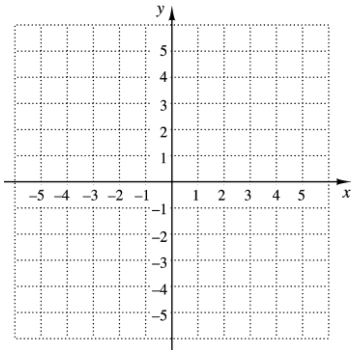


3. Use a graphing calculator to find the intervals on which the function $f(x) = x^3 - 2x^2$ is increasing or decreasing, and find any relative maxima or minima.

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:

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



6. For the function in Exercise 5, find $f(-3)$, $f\left(\frac{3}{4}\right)$, and $f(8)$.

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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26. _____

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. $(f - g)(8)$
9. $(fg)(-7)$
10. $(f / g)(0)$

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

11. The domain of f
12. The domain of g
13. The domain of $f + g$
14. The domain of $f - g$
15. The domain of fg
16. The domain of f / g
17. $(f + g)(x)$
18. $(f - g)(x)$
19. $(fg)(x)$
20. $(f / g)(x)$

For each function, construct and simplify the different quotient.

21. $f(x) = -\frac{3}{4}x + 5$
22. $f(x) = 6 - x^2$

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

23. $(f \circ g)(-2)$
24. $(g \circ h)(6)$
25. $(h \circ f)(3)$
26. $(f \circ f)(x)$

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

$\circ g)(x)$ $\circ f)(x)$

27. _____

28. _____

CHAPTER 2

TEST FORM A

NAME _____

27. Find $(f$ and $($.

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

CHAPTER 2 **NAME**_____

TEST FORM A

TEST FORM A

29. Find $f(x)$ and $g(x)$ such that $h(x) = (f \circ g)(x) = (3 - x^2)^4$.

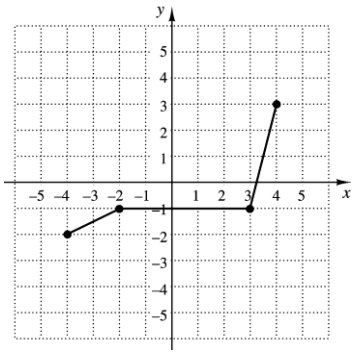
30. Determine whether the graph of $y = x^4 - 2x^2$ is symmetric with respect to the *x*-axis, the *y*-axis, and the origin.

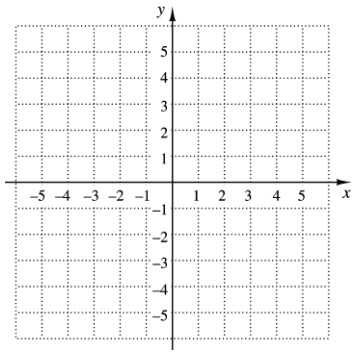
31. Test whether the function $f(x) = \dfrac{4x}{x-2}$ is even, odd, or neither even nor odd. Show your work.

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

33. Write an equation for a function that has the shape of $y = \sqrt{x}$, but shifted right 2 units and up 1 unit.

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





35. Find an equation of variation in which *y* varies inversely as *x*, and $y = 15$ when $x = 0.5$.

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

37. Find an equation of variation where *y* varies jointly as *x* and *z* and inversely as the square of *w*, and $y = 240$ when $x = 3$, $z = 5$, and $w = \dfrac{1}{2}$.

ANSWERS

29. _____

30. _____

31. _____

32. _____

33. _____

34. See graph.

35. _____

36. _____

37. _____

38. _____

28. 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

CHAPTER 2 **NAME**_____

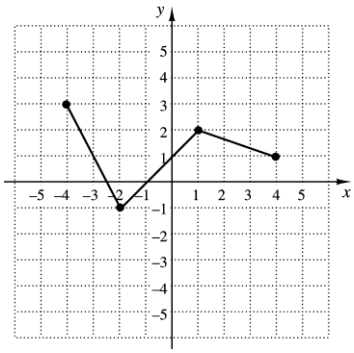
TEST FORM A

ANSWERS

39. _____

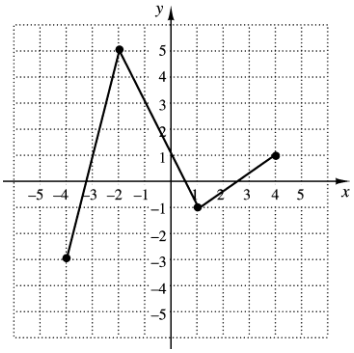
40. _____

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

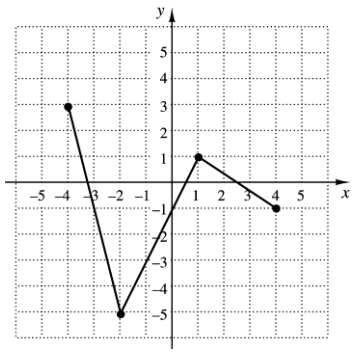


Which of the following represents the graph of $g(x) = -2f(x) + 3$?

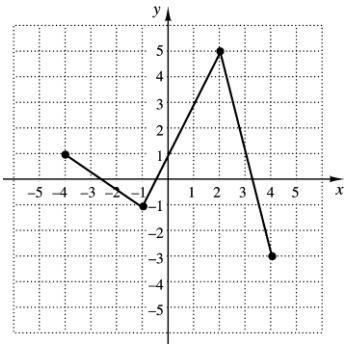
A.



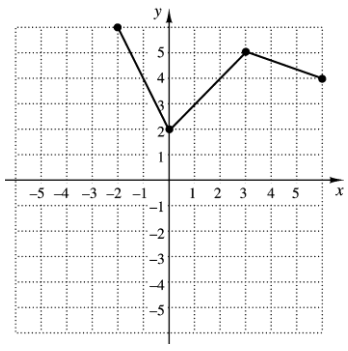
B.



C.



D.

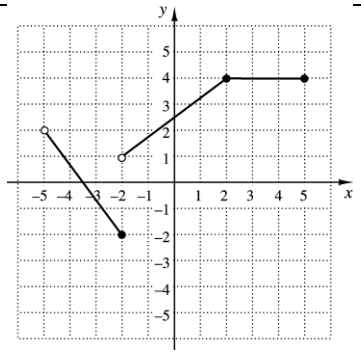


40. If $(-10, 10)$ is a point in the graph of $y = f(x)$, what point do you know is on the graph of $y = f\left(\frac{1}{2}x\right)$?

CHAPTER 2 **NAME**_____

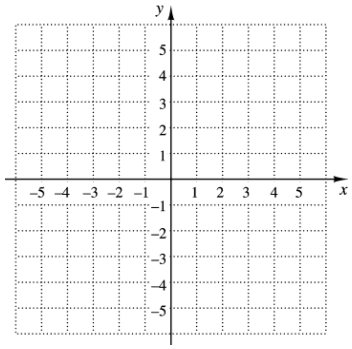
TEST FORM B **CLASS**_____ **SCORE**_____ **GRADE**_____

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



2. Graph the function $f(x) = x^2 - 4$.

   Estimate the intervals on which the function is increasing or decreasing, and estimate any relative maxima or minima.

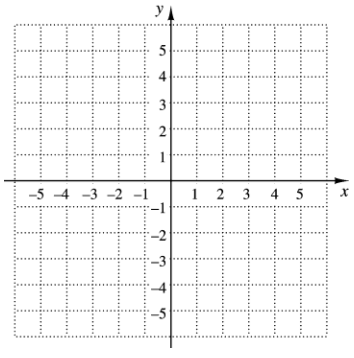


3. Use a graphing calculator to find the intervals on which the function $f(x) = x^3 + 5x^2$ is increasing or decreasing, and find any relative maxima or minima.

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:

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



6. For the function in Exercise 5, find $f(-4)$, $f\left(\frac{1}{2}\right)$, and $f(9)$.

ANSWERS

1. a) _____

   b) _____

   c) _____

2. See graph. _____

3. _____

4. _____

5. See graph. _____

6. _____

CHAPTER 2 **NAME**_____

TEST FORM B **CLASS**_____ **SCORE**_____ **GRADE**_____

ANSWERS

7. _____
8. _____
9. _____
10. _____
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24. _____
25. _____
26. _____

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. $(f-g)(-2)$
9. $(fg)(10)$
10. $(g/f)(3)$

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

11. The domain of f
12. The domain of g
13. The domain of $f + g$
14. The domain of $f - g$
15. The domain of fg
16. The domain of g / f
17. $(f+g)(x)$
18. $(f-g)(x)$
19. $(fg)(x)$
20. $(f/g)(x)$

For each function, construct and simplify the different quotient.

21. $f(x) = 1 - 5x$
22. $f(x) = 5x^2 + 2$

Given that $f(x) = x^2 - 2x + 1$, $g(x) = 2x + 3$, and $h(x) = x^2 - 4$, find each of the following.

23. $(f \circ g)(-1)$
24. $h(g(4))$
25. $(h \circ f)(1)$
26. $(g \circ g)(x)$

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

27. $(f \circ g)(x)$ and $(g \circ f)(x)$.

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

CHAPTER 2 **NAME**_____

TEST FORM B

29. Find $f(x)$ and $g(x)$ such that $h(x) = (f \circ g)(x) = \sqrt{x^2 + 2x - 4}$.

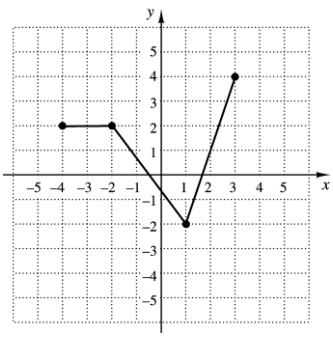
30. Determine whether the graph of $y = x^3 - 2x$ is symmetric with respect to the *x*-axis, the *y*-axis, and/or the origin.

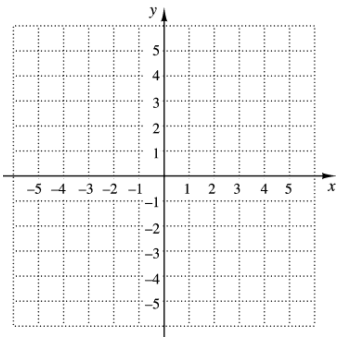
31. Test whether the function $f(x) = 4x^3 - 2x$ is even, odd, or neither even nor odd. Show your work.

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

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

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





35. Find an equation of variation in which *y* varies inversely as *x*, and $y = 0.4$ when $x = 8$.

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

37. Find an equation of variation where *y* varies jointly as the square of *x* and the square of *z* and inversely as *w*, and $y = 4$ when $x = 4$, $z = \frac{1}{2}$, and $w = 5$.

ANSWERS

29. _____

30. _____

31. _____

32. _____

33. _____

34. See graph.

35. _____

36. _____

37. _____

38. _____

28. The volume of a 6-in. tall cone varies directly as the square of the radius. The volume is $14.1\,\text{in}^3$ when the radius is 1.5 in. Find the volume when the radius is 3 in.

CHAPTER 2 **NAME**_____

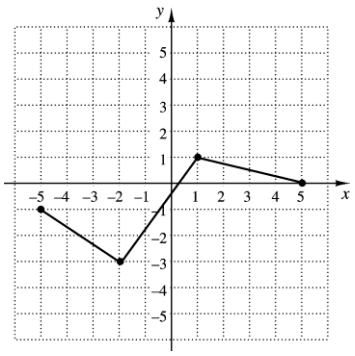
TEST FORM B

ANSWERS

39. _____

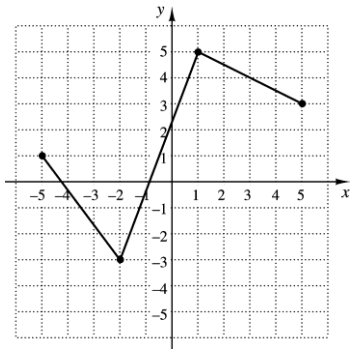
40. _____

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

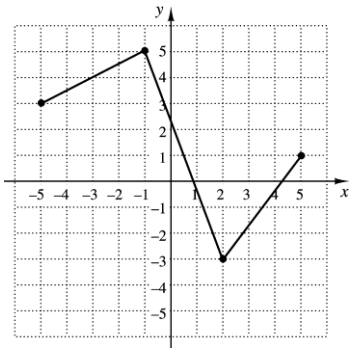


Which of the following represents the graph of $g(x) = -2f(x) - 3$?

A.



B.



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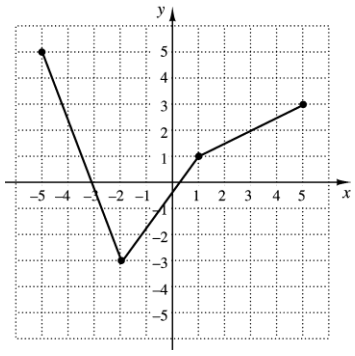
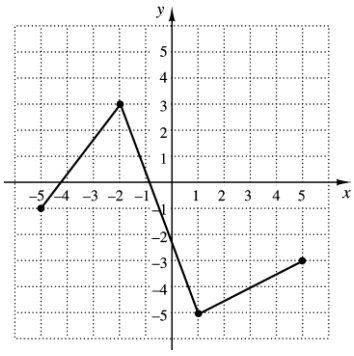


D.

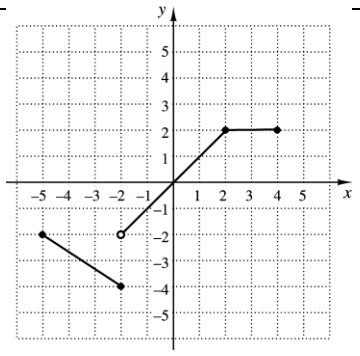


40. If $(-6, 3)$ is a point in the graph of $y = f(x)$, what point do you know is on the graph of $y = f(-3x)$?

CHAPTER 2 **NAME**_____

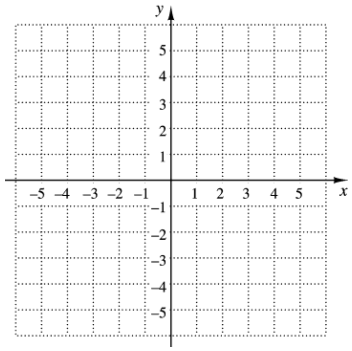
TEST FORM C **CLASS**_____ **SCORE**_____ **GRADE**_____

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



2. Graph the function $f(x) = |x| + 2$:

   Estimate the intervals on which the function is increasing or decreasing, and estimate any relative maxima or minima.

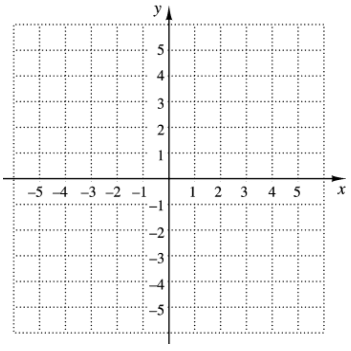


3. Use a graphing calculator to find the intervals on which the function $f(x) = 2x^3 - 5x^2$ is increasing or decreasing, and find any relative maxima or minima.

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:

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



6. For the function in Exercise 5, find $f\left(-\frac{1}{2}\right)$, $f(3)$, and $f(-4)$.

ANSWERS

1. a) _____

   b) _____

   c) _____

2. See graph.

3. _____

4. _____

5. See graph.

6. _____

CHAPTER 2 **NAME**_____

TEST FORM C **CLASS**____**SCORE**____**GRADE**____

ANSWERS

7. _____
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19. _____
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21. _____
22. _____
23. _____
24. _____
25. _____

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

7. $(f + g)(3)$
8. $(f - g)(4)$
9. $(fg)(-5)$
10. $(f / g)(2)$

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

11. The domain of f
12. The domain of g
13. The domain of $f + g$
14. The domain of $f - g$
15. The domain of fg
16. The domain of f / g
17. $(f + g)(x)$
18. $(f - g)(x)$
19. $(fg)(x)$
20. $(f / g)(x)$

For each function, construct and simplify the different quotient.

21. $f(x) = 0.1x + 6$
22. $f(x) = x^3 - x$

Given that $f(x) = 4 - x^2$, $g(x) = \frac{1}{2}x + 2$, and $h(x) = x^2 + 6x - 3$, find each of the following.

23. $(f \circ g)(2)$
24. $h(g(4))$
25. $(h \circ f)(-1)$
26. $(g \circ g)(x)$

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

CHAPTER 2

TEST FORM C

NAME _____

CLASS _____ **SCORE** _____ **GRADE** _____

26. _____

27. $(f \circ g)(x)$ and $(g \circ f)(x)$.

27. _____

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

28. _____

CHAPTER 2 **NAME**_____

TEST FORM C

29. Find $f(x)$ and $g(x)$ such that $h(x) = (f \circ g)(x) = \left(\frac{x-1}{x+1}\right)^3$.

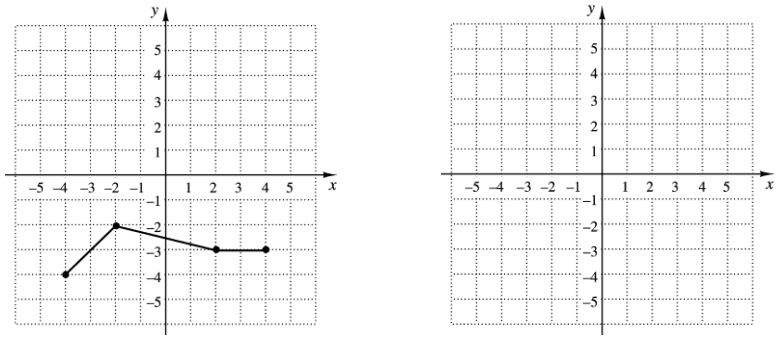
30. Determine whether the graph of $y = 3x^6 - 2x^4$ is symmetric with respect to the *x*-axis, the *y*-axis, and/or the origin.

31. Test whether the function $f(x) = 5x^3 - 7$ is even, odd, or neither even nor odd. Show your work.

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

33. Write an equation for a function that has the shape of $y = |x|$, but shifted left 3 units and down 1 unit.

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



35. Find an equation of variation in which *y* varies inversely as *x*, and $y = 1800$ when $x = 150$.

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

37. Find an equation of variation where *y* varies jointly as *x* and *z* and inversely as the square root of *w*, and $y = 54$ when $x = 4$, $z = 9$, and $w = 4$.

ANSWERS

29. _____

30. _____

31. _____

32. _____

33. _____

34. See graph.

35. _____

36. _____

37. _____

38. _____

28. 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.

CHAPTER 2 **NAME**_____

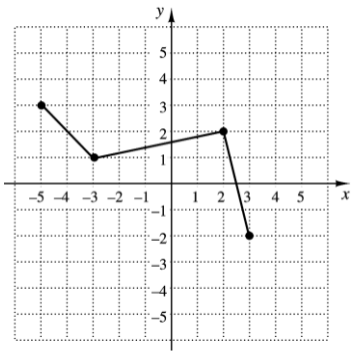
TEST FORM C

ANSWERS

39. _____

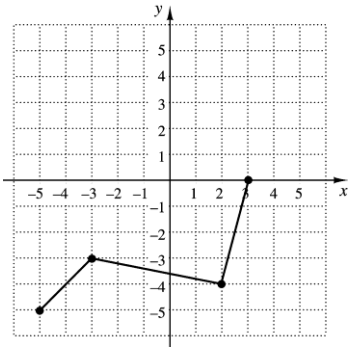
40. _____

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

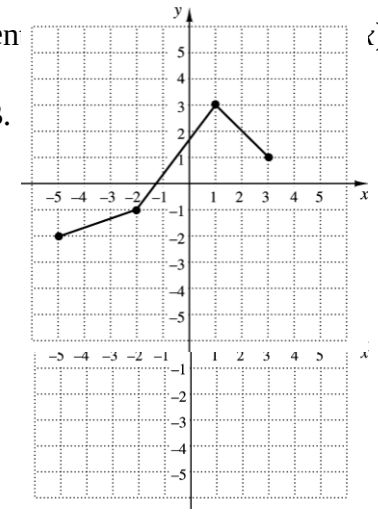


Which of the following represen $(x)+2$?

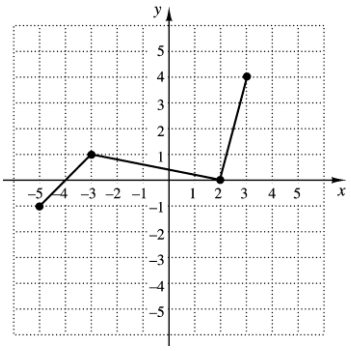
A.



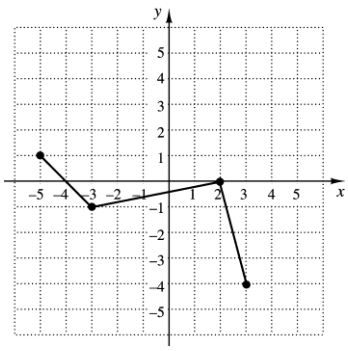
B.



C.



D.

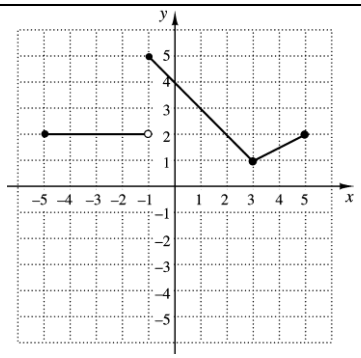


40. If $(4,-6)$ is a point in the graph of $y=f(x)$, what point do you know is on the graph of $y=f(-2x)$?

CHAPTER 2 **NAME**_____

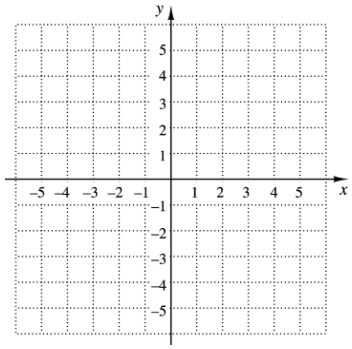
TEST FORM D **CLASS**_____ **SCORE**_____ **GRADE**_____

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



2. Graph the function $f(x) = 5 - |x|$.

   Estimate the intervals on which the function is increasing or decreasing, and estimate any relative maxima or minima.

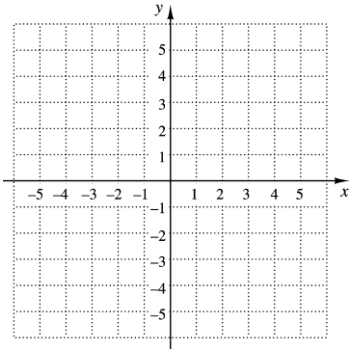


3. Use a graphing calculator to find the intervals on which the function $f(x) = 5x^3 - 6x^2$ is increasing or decreasing, and find any relative maxima or minima.

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:

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



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

ANSWERS

1. a) _____

   b) _____

   c) _____

2. See graph.

3. _____

4. _____

5. See graph.

6. _____

CHAPTER 2 **NAME**_____

TEST FORM D **CLASS**____**SCORE**____**GRADE**____

ANSWERS

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

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. $(f-g)(12)$

9. $(fg)(-4)$ 10. $(f/g)(5)$

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

11. The domain of f 12. The domain of g

13. The domain of $f + g$ 14. The domain of $f - g$

15. The domain of fg 16. The domain of f / g

17. $(f+g)(x)$ 18. $(f-g)(x)$

19. $(fg)(x)$ 20. $(f/g)(x)$

For each function, construct and simplify the different quotient.

21. $f(x) = 14 - \frac{1}{2}x$ 22. $f(x) = 2x^2 + 6$

Given that $f(x) = x^2 + 2$, $g(x) = 2x - 5$, and $h(x) = 3x^2 + 4x - 2$, find each of the following.

23. $(f \circ g)(1)$ 24. $(g \circ h)(-3)$

25. $(h \circ f)(2)$ 26. $(g \circ g)(x)$

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

NAME _____

CLASS _____ **SCORE** _____ **GRADE** _____

27. _____ 27. Find $(f \circ g)(x)$ and $(g \circ f)(x)$.

28. _____ 28. Find the domain of $(f \circ g)(x)$ and $(g \circ f)(x)$.

CHAPTER 2 **NAME**_____

TEST FORM D

29. Find $f(x)$ and $g(x)$ such that

$h(x) = (f \circ g)(x) = (x-3)^2 + 3(x-3) - 40$.

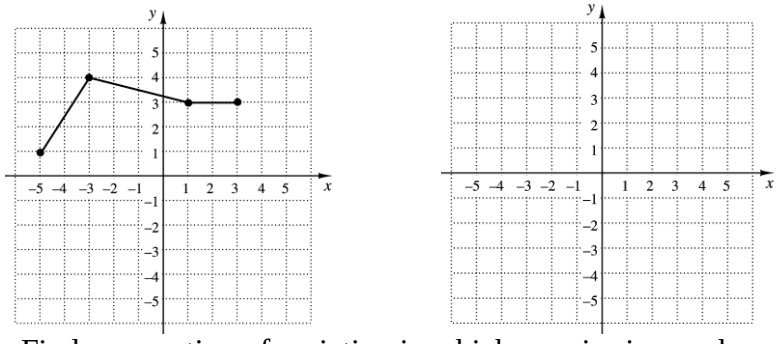
30. Determine whether the graph of $y = \dfrac{3x}{x^2 - 4}$ is symmetric with respect to the *x*-axis, the *y*-axis, and/or the origin.

31. Test whether the function $f(x) = \sqrt{4 - x^2}$ is even, odd, or neither even nor odd. Show your work.

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

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

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



35. Find an equation of variation in which *y* varies inversely as *x*, and $y = \dfrac{2}{3}$ when $x = 9$.

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

37. Find an equation of variation where *y* varies jointly as *x* and the square of *z* and inversely as *w*, and $y = 0.05$ when $x = 5$, $z = 0.2$, and $w = 8$.

ANSWERS

29. _____

30. _____

31. _____

32. _____

33. _____

34. See graph.

35. _____

36. _____

37. _____

38. _____

28. 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.

CHAPTER 2 **NAME**_____

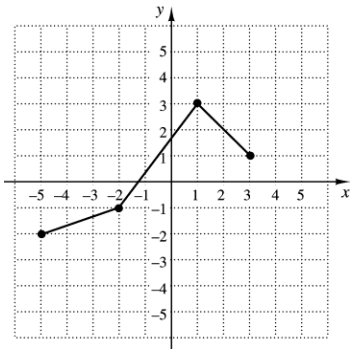
TEST FORM D

ANSWERS

39. _____

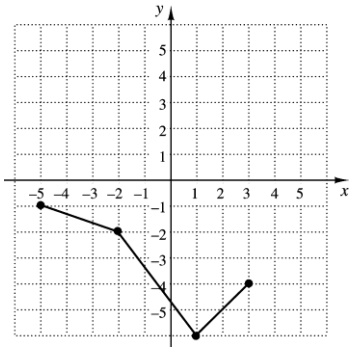
40. _____

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

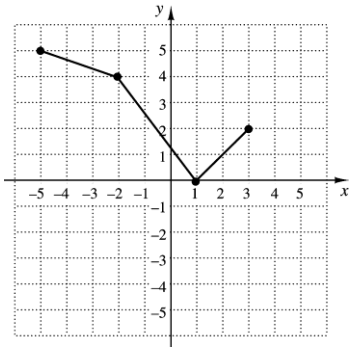


Which of the following represents the graph of $g(x) = -f(x) - 3$?

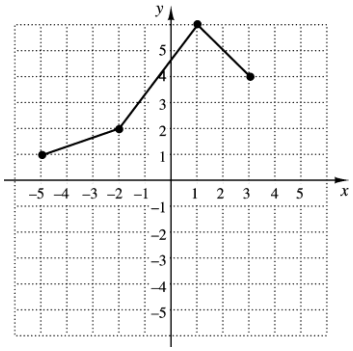
A.



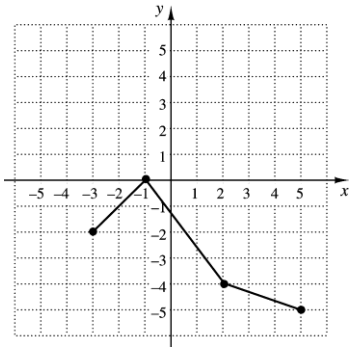
B.



C.



D.

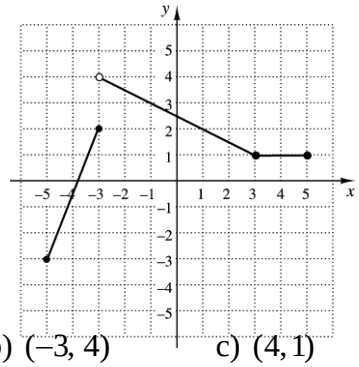


40. If $(-3, 6)$ is a point in the graph of $y = f(x)$, what point do you know is on the graph of $y = f(x+3)$?

CHAPTER 2 **NAME**_____

TEST FORM E **CLASS**____**SCORE**____**GRADE**____

1. Determine on which interval the function is decreasing.



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

2. The width of a rectangular blanket is 4 less than twice 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 3 and 4.

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

3. Find $f(-1)$.

a) -2 b) $\sqrt{2}$ c) 2 d) 4

4. Find $f(5)$.

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

5. For $f(x) = x^3 + 4x - 5$ and $g(x) = -2x + 5$, find $(g - f)(-1)$.

a) -17 b) 15 c) 17 d) 9

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

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

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

ANSWERS

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

CHAPTER 2 **NAME**_____

TEST FORM E **CLASS**____ **SCORE**____ **GRADE**____

ANSWERS

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

7. 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) $(-\infty, -2) \cup (-2, 2) \cup (2, 3]$

8. Construct and simplify the difference quotient for $f(x) = 8 - 3x$.

a) 8 b) -3 c) $-3h$ d) $8h - 3xh$

9. 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) $4x + 2h - 1 - \dfrac{2x}{h}$

10. 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) $h(x) = 4x^2$

11. For $g(x) = 8 - 3x$, find $h(x) = (g \circ g)(x)$.

a) $h(x) = 9x - 16$ b) $h(x) = 9x^2 - 48x + 64$

c) $h(x) = 16 - 6x$ d) $h(x) = 9x - 24$

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

a) $(-\infty, \infty)$ b) $\left(-\infty, \frac{5}{2}\right) \cup \left(\frac{5}{2}, \infty\right)$

c) $(-\infty, -1) \cup (-1, \infty)$ d) $(-\infty, -1) \cup \left(-1, \frac{5}{2}\right) \cup \left(\frac{5}{2}, \infty\right)$

13. Which of the following functions is symmetric with respect to the *y*-axis?

a) $y = (|x| + 4)^2$ c) $y = -|x| - 2$

b) $y = x^2$

CHAPTER 2 **NAME** d) $y = x - x^3$

TEST FORM E **CLASS** **SCORE** **GRADE**

14. _____

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**_____

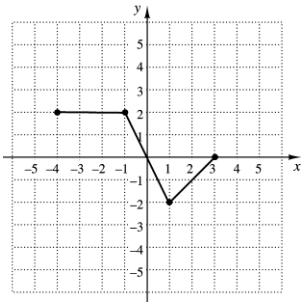
TEST FORM E

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

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

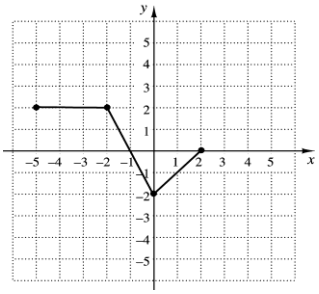
c) $f(x) = (x-3)^2 - 4$ d) $f(x) = (x+3)^2 - 4$

16. The graph of $y = f(x)$ is given.

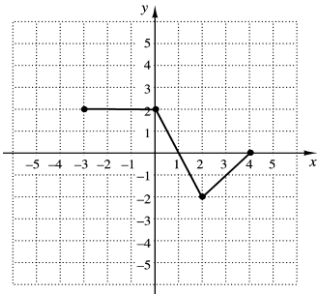


Which graph below represents the graph of $y = f(x) - 1$?

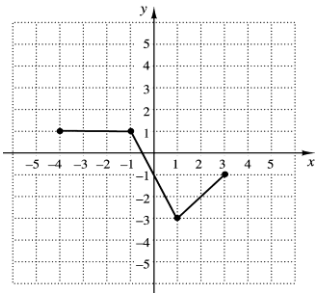
a)



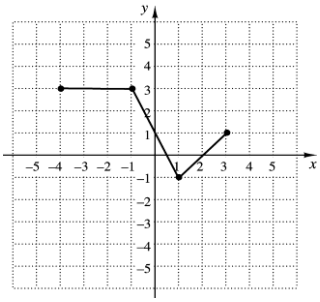
b)



c)



d)



17. Find an equation of variation in which y varies directly as x and $y = \frac{2}{3}$ and $x = 9$.

a) $y = \frac{27}{2}x$ b) $y = \frac{2}{27}x$ c) $y = 6x$ d) $y = \frac{6}{x}$

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

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

ANSWERS

15. _____

16. _____

17. _____

18. _____

CHAPTER 2 **NAME**_____

TEST FORM E

CHAPTER 2 **NAME**_____

TEST FORM E

ANSWERS

19. _____

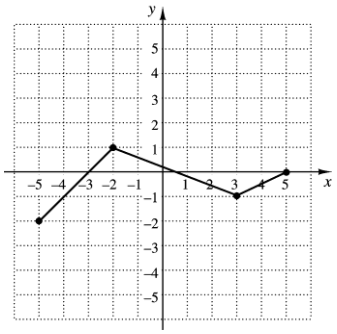
20. _____

21. _____

19. d varies inversely as w and directly as the square of v. If $d = 400$ when $w = 0.2$ and $v = 4$, find d when $w = 3$ and $v = 9$.

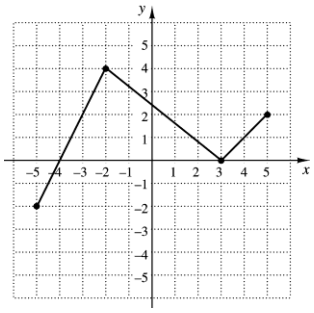
a) $\frac{20}{3}$ b) 135 c) 5 d) 3375

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

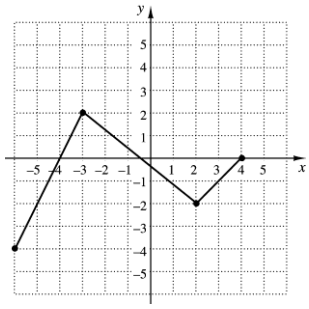


Which of the following represents the graph of $g(x) = 2f(x) + 1$?

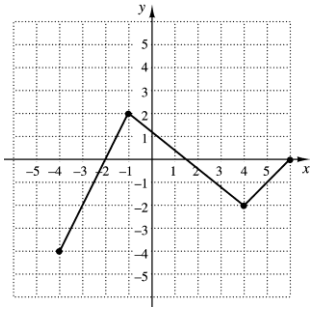
a)



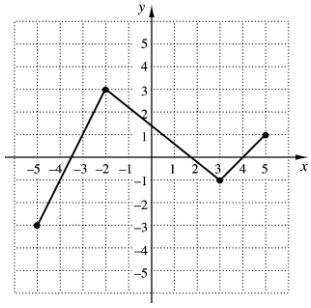
b)



c)



d)



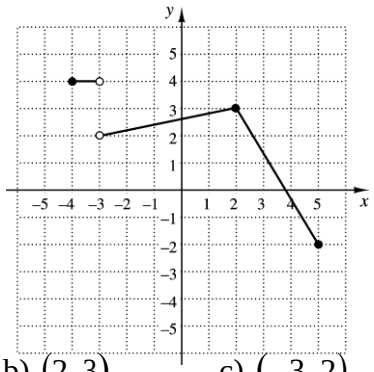
21. If $(-1, -4)$ is a point on the graph of $y = f(x)$, what point do you know is on the graph of $y = f\left(\frac{1}{2}x\right)$?

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 interval the function is increasing.



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

2. 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 3 and 4.

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

3. Find $f(-1)$

a) 2 b) 0 c) 7 d) 5

4. Find $f(2)$

a) 5 b) $\sqrt{6}$ c) 1 d) 4

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

a) -1 b) -15 c) -25 d) -17

6. 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) $h(x) = \sqrt{x - 5}$

c) $h(x) = x^2\sqrt{x} - 5\sqrt{x}$ d) $h(x) = x^2 - 5$

ANSWERS

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

CHAPTER 2 **NAME** _____

TEST FORM F **CLASS** _____ **SCORE** _____ **GRADE** _____

ANSWERS

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

7. 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) $\left(-\infty, -\sqrt{5}\right) \cup \left(-\sqrt{5}, \sqrt{5}\right) \cup \left(\sqrt{5}, \infty\right)$
d) $(0, \infty)$

8. Construct and simplify the difference quotient for $f(x) = \frac{1}{2}x + 2$.

a) 2 b) $\frac{1}{2}h$ c) $\frac{1}{2}$ d) $\frac{1}{2}xh + 2h$

9. 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) $4xh + 2h^2 - 3h$

10. 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) $h(x) = 2x^2 + x + 4$

11. For $g(x) = 2x - 5$, find $h(x) = (g \circ g)(x)$.

a) $h(x) = 4x - 10$ b) $h(x) = 4x^2 - 20x + 25$
c) $h(x) = 4x - 5$ d) $h(x) = 4x - 15$

12. For $f(x) = \sqrt{x + 2}$ and $g(x) = 3x - 5$, find the domain of $(f \circ g)(x)$.

a) $[0, \infty)$ b) $[1, \infty)$ c) $(-\infty, \infty)$ d) $[-2, \infty)$

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

a) $f(x) = 5 - x^2$ b) $f(x) = x$
c) $f(x) = 5x^3$ d) $f(x) = \sqrt{x}$

CHAPTER 2

14. _____

TEST FORM F

NAME _____

CLASS _____ **SCORE** _____ **GRADE** _____

14. Which of the following functions is even?

a) $f(x) = 2x + 8$

b) $f(x) = 4 - x^2$

c) $f(x) = x^2 + x$

d) $f(x) = \sqrt[4]{x}$

CHAPTER 2 **NAME**_____

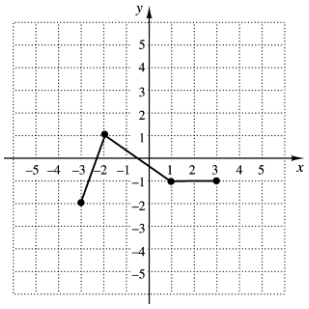
TEST FORM F

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

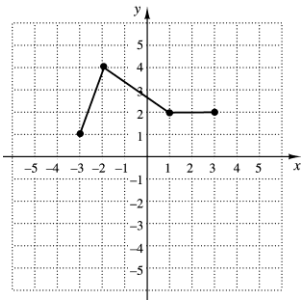
c) $f(x) = |x + 2| + 6$ d) $f(x) = |x - 2| - 6$

16. The graph of of $y = f(x)$ is given.

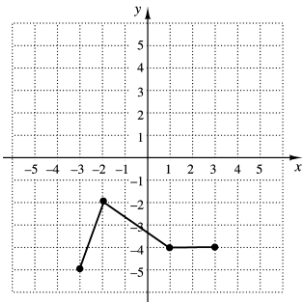


Which graph below represents the graph of $y = f(x) - 1$?

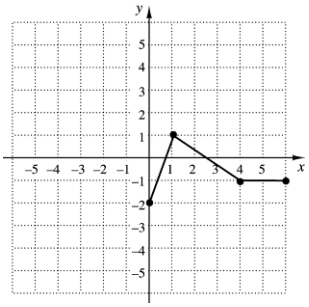
a)



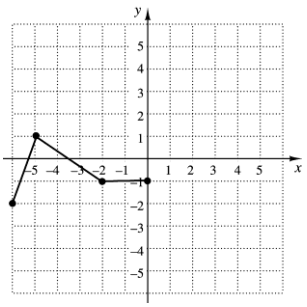
b)



c)



d)



17. Find an equation of variation in which y varies directly as x and $y = 18$ and $x = \frac{1}{3}$.

a) $y = 54x$ b) $y = \frac{1}{54}x$ c) $y = \frac{6}{x}$ d) $y = 6x$

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

ANSWERS

15. _____

16. _____

17. _____

18. _____

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

CHAPTER 2 **NAME** _____

TEST FORM F

CHAPTER 2 **NAME**_____

TEST FORM F

ANSWERS

19. _____

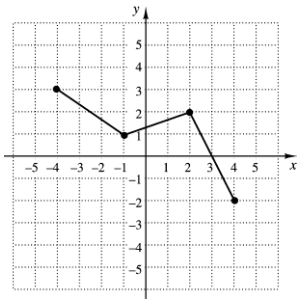
20. _____

21. _____

19. p varies directly as the square of m and inversely as n. If $p = 200$ when $m = 5$ and $n = \frac{1}{2}$, find p when $m = 6$ and $n = 2$.

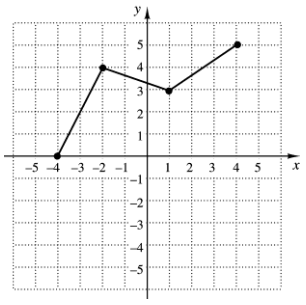
a) 72 b) 360 c) 288 d) 4

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

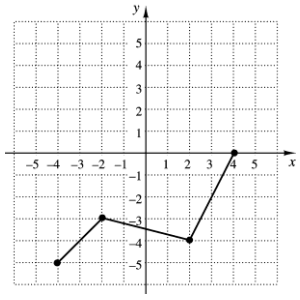


Which of the following represents the graph of $g(x) = -f(x) + 2$

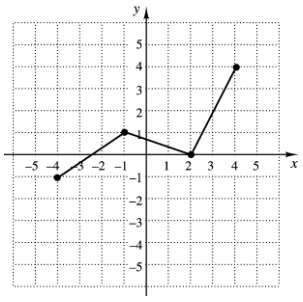
a)



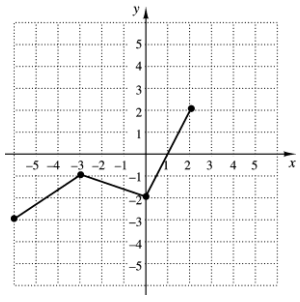
b)



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) $(-4, 5)$