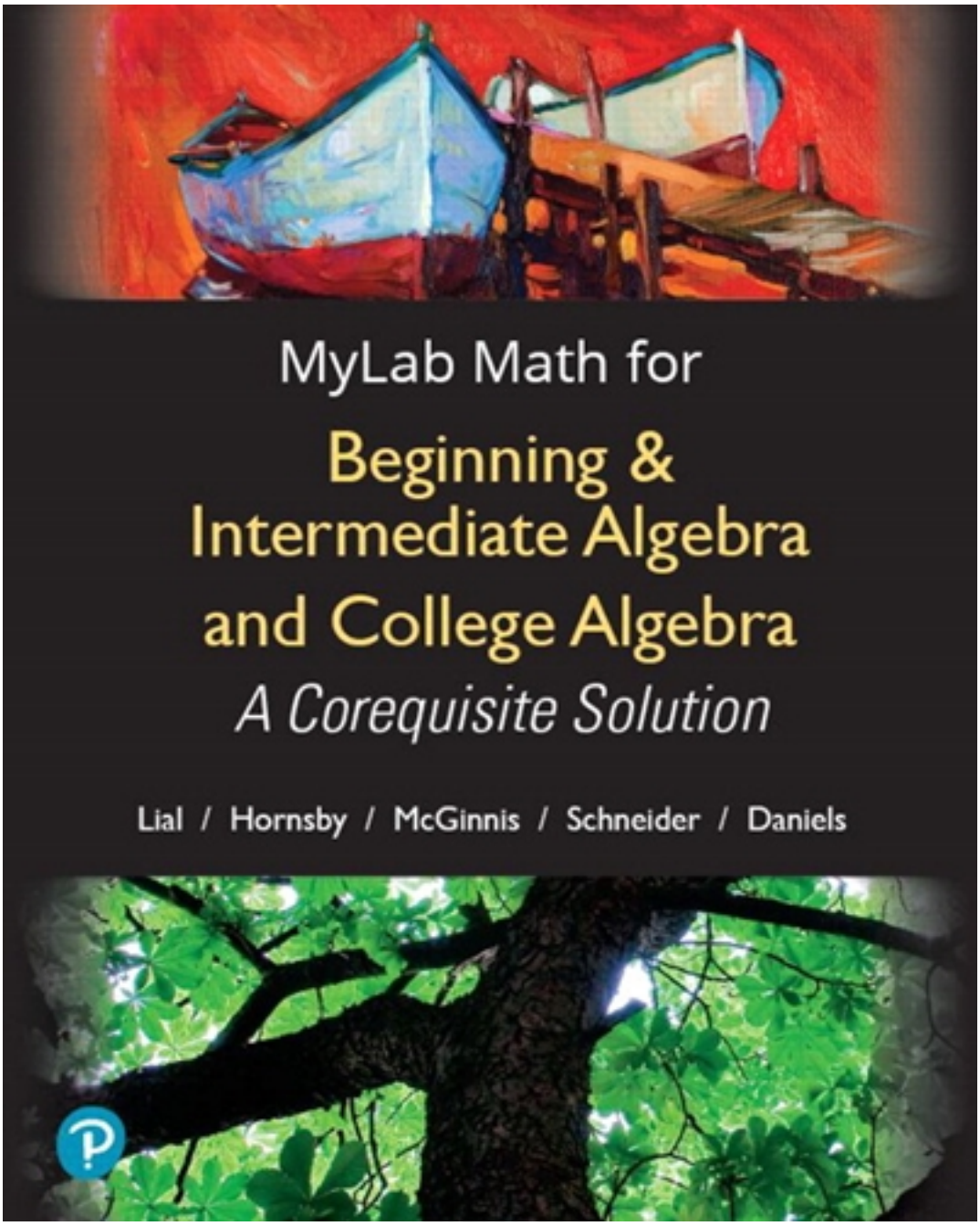
Test Bank for Beginning and Intermediate Algebra and College Algebra 1st Edition by Lial



Test Bank

CHAPTER 2, FORM A
COLLEGE ALGEBRA

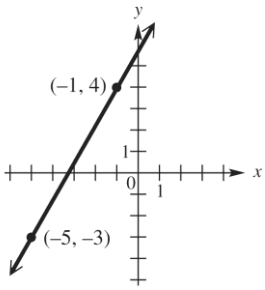
NAME_____
DATE_____

1. Match the set described in Column I with the correct interval notation from Column II. Choices in Column II may be used once, more than once, or not at all.

I	II
a. Domain of $f(x)=\sqrt{x-3}$	**A.** $(-\infty,\infty)$
b. Range of $f(x)=\sqrt{x}-3$	**B.** $[3,\infty)$
c. Domain of $f(x)=x^2-16$	**C.** $[0,2]$
d. Range of $y=2x^2$	**D.** $[0,\infty)$
e. Domain of $f(x)=\sqrt[3]{x-2}$	**E.** $[-3,3]$
f. Range of $f(x)=\sqrt[3]{x}+2$	**F.** $(-\infty,-2]$
g. Domain of $f(x)=\lvert x+2\rvert$	**G.** $[-3,\infty)$
h. Range of $f(x)=\lvert x\rvert+3$	**H.** $[-7,\infty)$
i. Domain of $y=2s^2$	
j. Range of $f(x)=x^2-7$	

1. a. _____
b. _____
c. _____
d. _____
e. _____
f. _____
g. _____
h. _____
i. _____
j. _____

The graph shows the line that passes through the points $(-5,\ -3)$ and $(-1,\ 4)$. Refer to it to answer Exercises 2–6.



2. What is the slope of the line? **2.** _____

3. What is the distance between the two points shown? **3.** _____

4. What are the coordinates of the midpoint of the *segment* joining the two points? **4.** _____

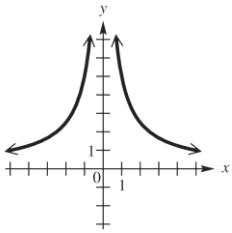
5. Find the standard form of the equation of the line. **5.** _____

6. Write the linear function defined by $f(x)=ax+b$ that has this line as its graph. **6.** _____

CHAPTER 2, FORM A

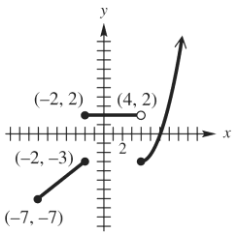
Tell whether each graph is that of a function. Give the domain and the range. If it is a function, give the intervals where it is increasing, decreasing, or constant.

7.



7. _____

8.



8. _____

9. Suppose point P has coordinates $\left(\frac{2}{5}, \frac{3}{7}\right)$.

a. What is the equation of the vertical line through P?

b. What is the equation of the horizontal line through P?

9. a. _____

b. _____

10. Find the slope-intercept form of the equation of the line passing through (2, 5) and

a. parallel to the graph of $y = 4x - 7$;

b. perpendicular to the graph of $y = 4x - 7$.

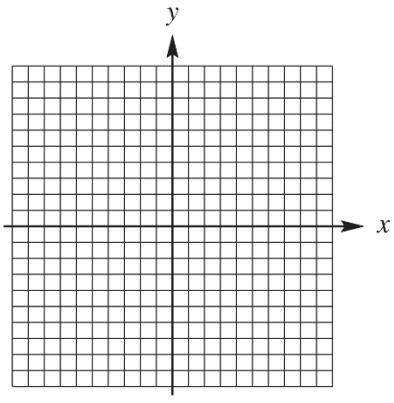
10. a. _____

b. _____

Graph each relation.

11. $x = 2|y - 3| + 1$

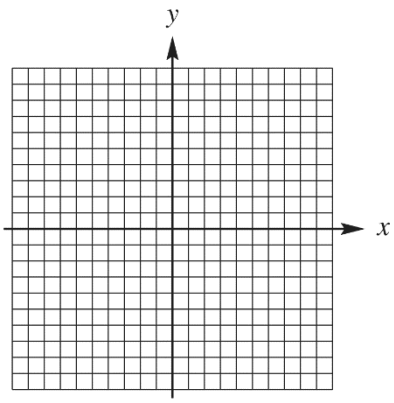
11.



CHAPTER 2, FORM A

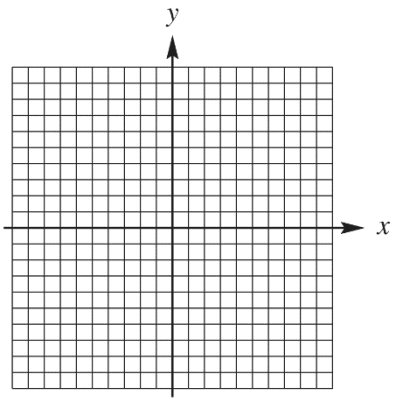
12. $f(x) = |x| + 2$

12.



13. $f(x) = \begin{cases} 2x - 1 & \text{if } x < 0 \\ -3x - 1 & \text{if } x \geq 0 \end{cases}$

13.



14. Explain how the graph of $y = -\frac{1}{2}\sqrt{x+3} + 5$ can be obtained from the graph of $y = \sqrt{x}$.

14. _____

15. Determine whether the graph of $2x^2 + 3y^2 = 1$ is symmetric with respect to

a. the x-axis,

b. the y-axis,

c. the origin.

15. a. _____

b. _____

c. _____

Given $f(x) = x^2 - 1$ *and* $g(x) = 2x + 1$, *find each of the following. Simplify the expressions when possible.*

16. $(fg)(x)$

16. _____

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

17. _____

18. the domain of $\frac{g}{f}$

18. _____

CHAPTER 2, FORM A

19. $\dfrac{f(x+h)-f(x)}{h}$ **19.** _____

20. $(f-g)(0)$ **20.** _____

21. $\left(\dfrac{f}{g}\right)(2)$ **21.** _____

22. $(f \circ g)(x)$ **22.** _____

23. $(f \circ g)(-2)$ **23.** _____

24. $(g \circ f)(x)$ **24.** _____

25. $(g \circ f)(-2)$ **25.** _____

CHAPTER 2, FORM B
COLLEGE ALGEBRA

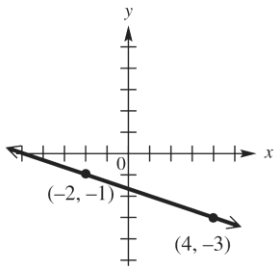
NAME_____
DATE_____

1. Match the set described in Column I with the correct interval notation from Column II. Choices in Column II may be used once, more than once, or not at all.

I	II
a. Domain of $f(x)=\sqrt{x-4}$	**A.** $(-\infty,\infty)$
b. Range of $f(x)=\sqrt{x}-2$	**B.** $[-2,\infty)$
c. Domain of $f(x)=3x^2$	**C.** $[0,2]$
d. Range of $f(x)=x^2+5$	**D.** $[0,\infty)$
e. Domain of $f(x)=\sqrt[3]{x-8}$	**E.** $[-3,3]$
f. Range of $f(x)=\sqrt[3]{x}-1$	**F.** $(-\infty,-2]$
g. Domain of $f(x)=\lvert x-2\rvert$	**G.** $[5,\infty)$
h. Range of $f(x)=\lvert x\rvert+5$	**H.** $[4,\infty)$
i. Domain of $x=2y^2$	
j. Range of $x=2y^2$	

1. a. _____
b. _____
c. _____
d. _____
e. _____
f. _____
g. _____
h. _____
i. _____
j. _____

The graph shows the line that passes through the points $(-2,-1)$ and $(4,-3)$. Refer to it to answer Exercises 2–6.



2. What is the slope of the line? **2.** _____

3. What is the distance between the two points shown? **3.** _____

4. What are the coordinates of the midpoint of the *segment* joining the two points? **4.** _____

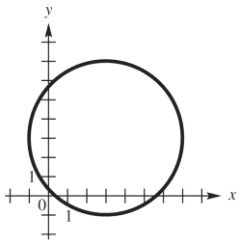
5. Find the standard form of the equation of the line. **5.** _____

6. Write the linear function defined by $f(x)=ax+b$ that has this line as its graph. **6.** _____

CHAPTER 2, FORM B

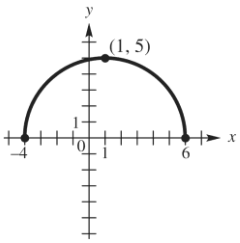
Tell whether each graph is that of a function. Give the domain and the range. If it is a function, give the intervals where it is increasing, decreasing, or constant.

7.



7. _____

8.

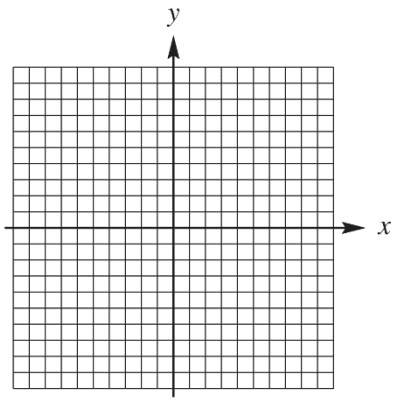


8. _____

Graph each relation.

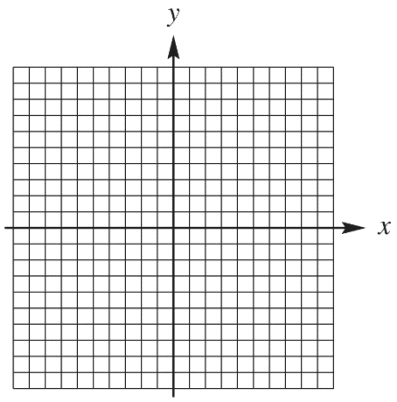
9. $f(x) = 2 - |3x|$

9.



10. $f(x) = \left|\frac{1}{2}x\right|$

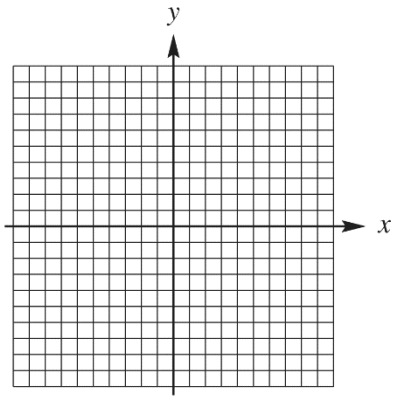
10.



CHAPTER 2, FORM B

11. $f(x)=\begin{cases}-2x & \text{if } x<-3\\ 4 & \text{if } -3\le x\le 2\\ x-4 & \text{if } x\ge 2\end{cases}$

11.



12. Suppose point P has coordinates $\left(\frac{5}{8},-\frac{7}{9}\right)$.

a. What is the equation of the vertical line through P? **12. a.** _____

b. What is the equation of the horizontal line through P? **b.** _____

13. Find the slope-intercept form of the equation of the line passing through $(-6,3)$ and

a. parallel to the graph of $y=-3x-12$; **13. a.** _____

b. perpendicular to the graph of $y=-3x-12$. **b.** _____

14. Explain how the graph of $y=-\frac{1}{3}\sqrt{x+4}+2$ can be obtained from the graph of $y=\sqrt{x}$. **14.** _____

15. Determine whether the graph of $y^2=3x$ is symmetric with respect to **15. a.** _____

a. the x-axis, **b.** _____

b. the y-axis, **c.** _____

c. the origin.

Given $f(x)=2x^2+7x+6$ *and* $g(x)=3x-2$, *find each of the following. Simplify the expressions when possible.*

16. $(fg)(x)$ **16.** _____

17. $(f-g)(x)$ **17.** _____

18. the domain of $\frac{g}{f}$ **18.** _____

CHAPTER 2, FORM B

19. $\dfrac{f(x+h)-f(x)}{h}$ **19.** _____

20. $(f+g)(1)$ **20.** _____

21. $\left(\dfrac{g}{f}\right)(0)$ **21.** _____

22. $(f \circ g)(x)$ **22.** _____

23. $(f \circ g)(1)$ **23.** _____

24. $(g \circ f)(x)$ **24.** _____

25. $(g \circ f)(1)$ **25.** _____

CHAPTER 2, FORM C
COLLEGE ALGEBRA

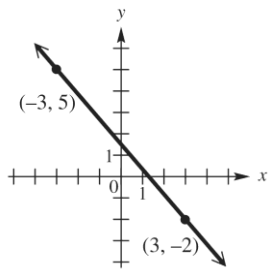
NAME_____
DATE_____

1. Match the set described in Column I with the correct interval notation from Column II. Choices in Column II may be used once, more than once, or not at all.

I	II
a. Domain of $f(x)=\sqrt{x+2}$	**A.** $(-\infty,\infty)$
b. Range of $f(x)=\sqrt{x}-4$	**B.** $[-4,\infty)$
c. Domain of $f(x)=x^2-1$	**C.** $[0,2]$
d. Range of $f(x)=x^2-16$	**D.** $[0,\infty)$
e. Domain of $f(x)=\sqrt[3]{x-2}$	**E.** $[-3,3]$
f. Range of $f(x)=\sqrt[3]{x}+2$	**F.** $(-\infty,-3]$
g. Domain of $f(x)=\lvert x+3\rvert$	**G.** $[-1,\infty)$
h. Range of $f(x)=\lvert x\rvert-3$	**H.** $[-2,\infty)$
i. Domain of $y=2x^2$	
j. Range of $y=x^2-3$	

1. a. _____
b. _____
c. _____
d. _____
e. _____
f. _____
g. _____
h. _____
i. _____
j. _____

The graph shows the line that passes through the points $(-3,-5)$ and $(3,-2)$. Refer to it to answer Exercises 2–6.



2. What is the slope of the line? **2.** _____

3. What is the distance between the two points shown? **3.** _____

4. What are the coordinates of the midpoint of the *segment* joining the two points? **4.** _____

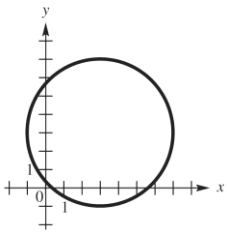
5. Find the standard form of the equation of the line. **5.** _____

6. Write the linear function defined by $f(x)=ax+b$ that has this line as its graph. **6.** _____

CHAPTER 2, FORM C

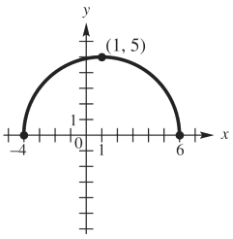
Tell whether each graph is that of a function. Give the domain and the range. If it is a function, give the intervals where it is increasing, decreasing, or constant.

7.



7. _____

8.



8. _____

9. Suppose point P has coordinates $\left(2\sqrt{2}, -\sqrt{5}\right)$.

a. What is the equation of the vertical line through P?

b. What is the equation of the horizontal line through P?

9. a. _____

b. _____

10. Find the slope-intercept form of the equation of the line passing through $(4, -2)$ and

a. parallel to the graph of $x = \frac{5}{4}y - 2$;

b. perpendicular to the graph of $x = \frac{5}{4}y - 2$;

10. a. _____

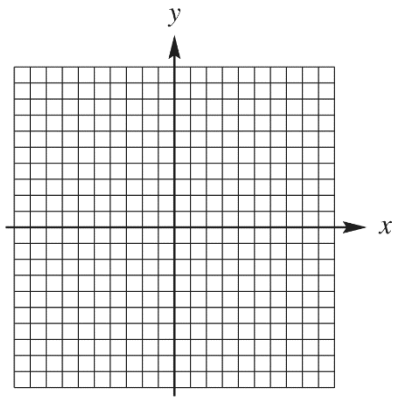
b. _____

CHAPTER 2, FORM C

Graph each relation.

11. $f(x) = \frac{1}{2}|x+1| - 2$

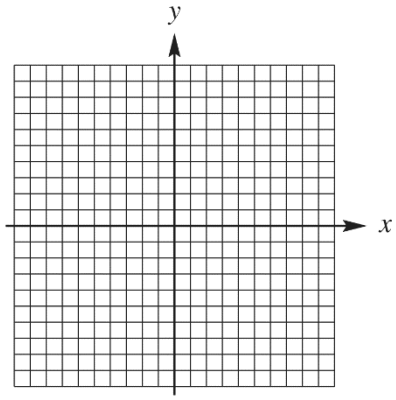
11.



CHAPTER 2, FORM A

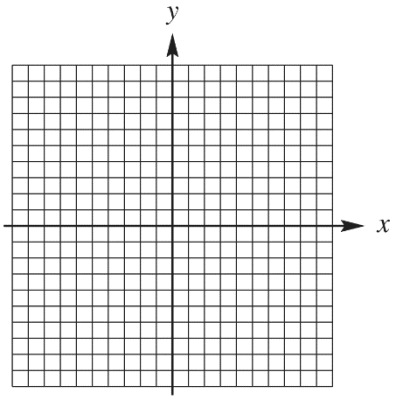
12. $f(x) = 2x - 2$

12.



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

13.



CHAPTER 2, FORM C

14. Explain how the graph of $y = 3|x+4|+2$ can be obtained from the graph of $y = |x|$.

14. _____

15. Determine whether the graph of $y = 3x^2 + 7$ is symmetric with respect to

a. the *x*-axis,

b. the *y*-axis,

c. the origin.

15. **a.** _____

b. _____

c. _____

Given $f(x) = 3x^2 - 2$ *and* $g(x) = 4x + 4$, *find each of the following. Simplify the expressions when possible.*

16. $(fg)(x)$ **16.** _____

17. $(g - f)(x)$ **17.** _____

18. $f(-2)$ **18.** _____

19. $\dfrac{f(x+h) - f(x)}{h}$ **19.** _____

20. $(f + g)(0)$ **20.** _____

21. $\left(\dfrac{f}{g}\right)(-2)$ **21.** _____

22. $(f - g)(x)$ **22.** _____

23. $(f \circ g)(x)$ **23.** _____

24. $(g \circ f)(x)$ **24.** _____

25. $(g \circ f)(0)$ **25.** _____

CHAPTER 2, FORM D
COLLEGE ALGEBRA

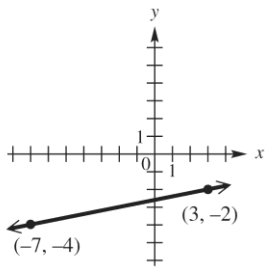
NAME_____
DATE_____

1. Match the set described in Column I with the correct interval notation from Column II. Choices in Column II may be used once, more than once, or not at all.

I	II
a. Domain of $f(x)=\sqrt{x+1}$	**A.** $(-\infty,-1]$
b. Range of $f(x)=\sqrt{x}+1$	**B.** $(-\infty,\infty)$
c. Domain of $f(x)=x^2-25$	**C.** $[0,2]$
d. Range of $f(x)=x^2-1$	**D.** $[0,\infty)$
e. Domain of $f(x)=\sqrt[3]{x-2}$	**E.** $[-3,3]$
f. Range of $f(x)=\sqrt[3]{x}+2$	**F.** $[-3,\infty)$
g. Domain of $f(x)=\lvert x+4\rvert$	**G.** $[-1,\infty)$
h. Range of $f(x)=\lvert x\rvert-4$	**H.** $[-4,\infty)$
i. Domain of $y=2x^2$	
j. Range of $y=x^2-4$	

1. a. _____
b. _____
c. _____
d. _____
e. _____
f. _____
g. _____
h. _____
i. _____
j. _____

The graph shows the line that passes through the points $(-7,-4)$ and $(3,-2)$. Refer to it to answer Exercises 2–6.



2. What is the slope of the line? **2.** _____

3. What is the distance between the two points shown? **3.** _____

4. What are the coordinates of the midpoint of the *segment* joining the two points? **4.** _____

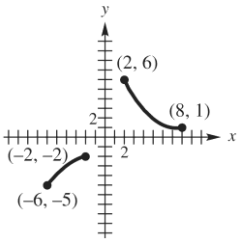
5. Find the standard form of the equation of the line. **5.** _____

6. Write the linear function defined by $f(x)=ax+b$ that has this line as its graph. **6.** _____

CHAPTER 2, FORM D

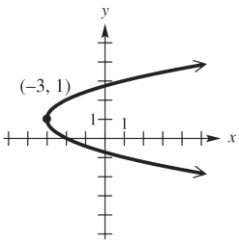
Tell whether each graph is that of a function. Give the domain and the range. If it is a function, give the intervals where it is increasing, decreasing, or constant.

7.



7. _____

8.

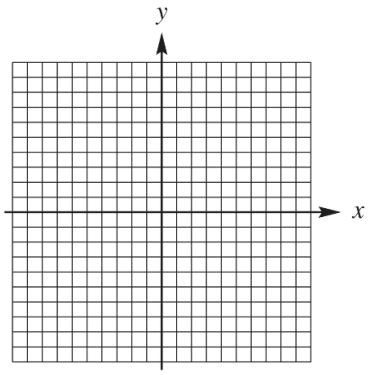


8. _____

Graph each relation.

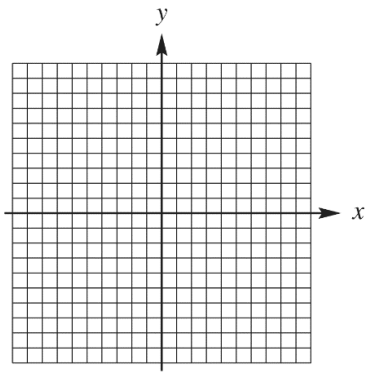
9. $f(x) = 3 + |x + 1|$

9.



10. $f(x) = \begin{cases} -x \text{ if } x < 0 \\ 2x \text{ if } x \geq 0 \end{cases}$

10.



CHAPTER 2, FORM D

11. Suppose point *P* has coordinates $(-3, 2.1)$.

a. What is the equation of the vertical line through *P*? **11. a.** _____

b. What is the equation of the horizontal line through *P*? **b.** _____

12. Find the slope-intercept form of the equation of the line passing through $(1, -5)$ and

a. parallel to the graph of $x = -\frac{3}{4}y + 5$; **12. a.** _____

b. perpendicular to the graph of $x = -\frac{3}{4}y + 5$; **b.** _____

13. Find the slope of the line through points $(11, -5)$ and $(-8, 6)$. **13.** _____

from the graph of $y = \sqrt{x}$.

14. Explain how the graph of $y = 3\sqrt{x-4} - 2$ can be obtained **14.** _____

from the graph of $y = \sqrt{x}$.

15. Determine whether the graph of $xy = -4$ is symmetric **15. a.** _____

with respect to **b.** _____

a. the *x*-axis, **c.** _____

b. the *y*-axis,

c. the origin.

Given $f(x) = 2x^3 - 3x - 1$ *and* $g(x) = 2x + 1$, *find each of the following. Simplify the expressions when possible.*

16. $(f+g)(x)$ **16.** _____

17. $\left(\frac{f}{g}\right)(x)$ **17.** _____

18. $f(0)$ **18.** _____

19. $\frac{f(x+h) - f(x)}{h}$ **19.** _____

20. $(g-f)(0)$ **20.** _____

21. $(fg)(-1)$ **21.** _____

22. $(f \circ g)(x)$ **22.** _____

CHAPTER 2, FORM D

23. $(f \circ g)(2)$ **23.** _____

24. $(g \circ f)(x)$ **24.** _____

25. $(g \circ f)(2)$ **25.** _____

CHAPTER 2, FORM E
COLLEGE ALGEBRA

NAME_____
DATE_____

Choose the best answer.

1a. Which of the following is the domain of $f(x) = \sqrt{3} - x$? **1a.** _____

a. $[0, 3]$ **b.** $(-\infty, 3]$

c. $[3, \infty)$ **d.** $(-\infty, \infty)$

1b. Which of the following is the range of $f(x) = x^2 - 49$? **1b.** _____

a. $[-49, \infty)$ **b.** $[-7, \infty)$

c. $[-7, 7]$ **d.** $[0, \infty)$

1c. Which of the following is the domain of $f(x) = \sqrt[3]{x+7}$? **1c.** _____

a. $(-\infty, \infty)$ **b.** $(-\infty, 6]$

c. $[0, \infty)$ **d.** $[6, \infty)$

1d. Which of the following is the range of $f(x) = |x| + 1$? **1d.** _____

a. $[-1, 1]$ **b.** $[0, 1]$

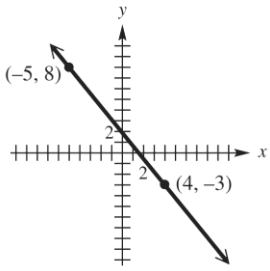
c. $[0, \infty)$ **d.** $[1, \infty)$

1e. Which of the following is the domain of $x = y^2$? **1e.** _____

a. $(-\infty, \infty)$ **b.** $[0, \infty)$

c. $(0, \infty)$ **d.** $(-\infty, 0]$

The graph shows the line that passes through $(-5, 8)$ *and* $(4, -3)$. *Refer to it to answer Exercises 2-6.*



2. What is the slope of the line? **2.** _____

a. $-\frac{13}{7}$ **b.** $\frac{11}{9}$

c. $-\frac{11}{9}$ **d.** 0

3. What is the distance between the two points shown? **3.** _____

a. $\sqrt{26}$ **b.** $2\sqrt{5}$

c. $\sqrt{202}$ **d.** $\sqrt{122}$

CHAPTER 2, FORM E

4. What are the coordinates of the midpoint of the segment joining the two points? **4.** _____

a. $\left(-\frac{1}{2}, \frac{5}{2}\right)$ **b.** $\left(-\frac{9}{2}, \frac{11}{2}\right)$

c. $\left(\frac{3}{2}, \frac{1}{2}\right)$ **d.** $(-1, 5)$

5. Find the standard form of the equation of the line. **5.** _____

a. $11x + 9y = 127$ **b.** $11x - 9y = 17$

c. $11x + 9y = 17$ **d.** $11x - 9y = 127$

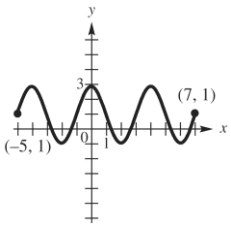
6. Find the standard form of the equation of the line. **6.** _____

a. $f(x) = \frac{11}{9}x - \frac{17}{9}$ **b.** $f(x) = -\frac{11}{9}x + \frac{17}{9}$

c. $f(x) = \frac{11}{9}x + \frac{127}{9}$ **d.** $f(x) = \frac{11}{9}x - \frac{127}{9}$

Tell whether each graph is that of a function. Give the domain and range.

7. **7.** _____



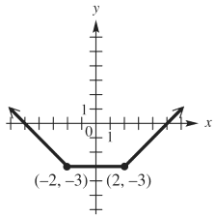
a. Function; domain: $[-5, 7]$; range: $[-1, 3]$

b. Function; domain: $(-\infty, \infty)$; range: $[-1, 3]$

c. Function; domain: $[-1, 3]$; range: $[-5, 7]$

d. Not a function; domain: $[-5, 7]$; range: $[-1, 3]$

8. **8.** _____



a. Not a function; domain: $(-\infty, \infty)$; range: $[-2, \infty)$

b. Not a function; domain: $[-5, 5]$; range: $[-3, \infty)$

c. Function; domain: $(-\infty, \infty)$; range: $[-2, \infty)$

d. Function; domain: $(-\infty, \infty)$; range: $[-3, \infty)$

CHAPTER 2, FORM E

9. Suppose point P has coordinates $(-6,1)$. **9.** _____
What is the equation of the horizontal line through P?

a. $x=-6$ **b.** $y=1$
c. $x=1$ **d.** $y=6$

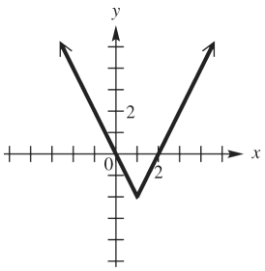
10. Find the slope-intercept form of the equation of the line passing. **10.** _____
through $(-2,5)$ perpendicular to the graph of $y=-\frac{1}{8}x+\frac{19}{4}$.

a. $y=8x+21$ **b.** $y=\frac{1}{3}x-3$
c. $y=-8x-13$ **d.** $y=-\frac{1}{3}x+3$

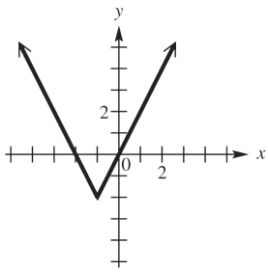
Graph each function.

11. $f(x)=2|x-1|-2$ **11.** _____

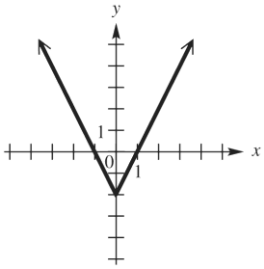
a.



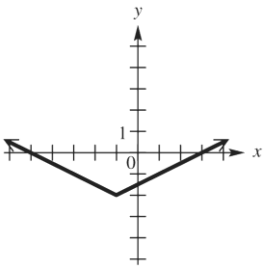
b.



c.



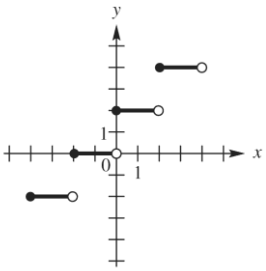
d.



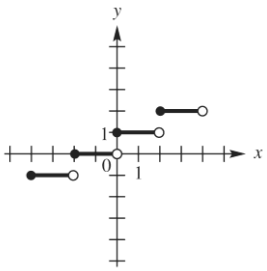
CHAPTER 2, FORM E

12. $f(x) = \left\lfloor \frac{1}{2}x \right\rfloor$ **12.** _____

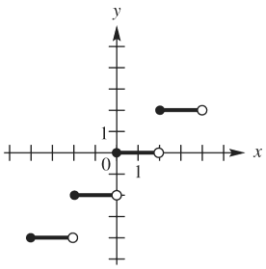
a.



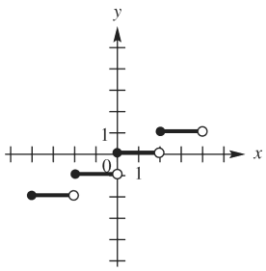
b.



c.

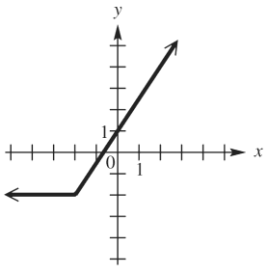


d.

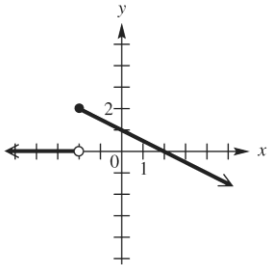


13. $f(x) = \begin{cases} 2 & \text{if } x < -2 \\ -\frac{1}{2}x + 1 & \text{if } x \geq -2 \end{cases}$ **13.** _____

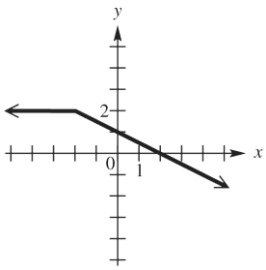
a.



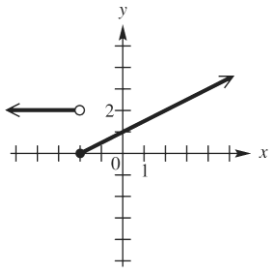
b.



c.



d.



CHAPTER 2, FORM E

14. Explain how the graph of $y = \sqrt{x+2} - 5$ can be obtained from the graph of $y = \sqrt{x}$. **14.** _____

a. Translate 2 unit to the right and 5 units up.
b. Translate 2 unit to the right and 5 units down.
c. Translate 2 unit to the left and 5 units up.
d. Translate 2 unit to the left and 5 units down.

15. Determine the symmetries of the graph of the relation $x^2 - 2xy + y^2 = 5$. **15.** _____

a. *x*-axis only **b.** *y*-axis only
c. origin only **d.** *x*-axis, *y*-axis, and origin

Given $f(x) = 5x - 4$ *and* $g(x) = x^2 + 3$, *find each of the following. Simplify the expressions when possible.*

16. $(fg)(x)$ **16.** _____

a. $x^3 + 4x^2 - 12$ **b.** $5x^3 - 4x^2 + 15x - 12$
c. $5x^3 + 4x^2 + 3x - 12$ **d.** $-5x^3 + 4x^2 - 5x - 12$

17. $(g - f)(x)$ **17.** _____

a. $x^2 - 5x + 7$ **b.** $x^2 + 5x - 7$
c. $-x^2 - 5x + 1$ **d.** $x^2 + 5x + 1$

18. The domain of $\frac{g}{f}$ **18.** _____

a. $\left(-\infty, \frac{4}{5}\right) \cup \left(\frac{4}{5}, \infty\right)$ **b.** $\left(-\infty, \frac{5}{4}\right) \cup \left(\frac{5}{4}, \infty\right)$
c. $\left(-\infty, \frac{1}{3}\right) \cup \left(\frac{1}{3}, \infty\right)$ **d.** $(-\infty, \infty)$

19. $\frac{f(x+h) - f(x)}{h}$ **19.** _____

a. h **b.** 5
c. $5x + 2h$ **d.** $5x + 2h - 4$

20. $(f + g)(-1)$ **20.** _____

a. -1 **b.** -5
c. 2 **d.** 5

CHAPTER 2, FORM E

21. $\left(\frac{f}{g}\right)(0)$ **21.** _____

a. $-\frac{3}{4}$ **b.** $\frac{1}{4}$

c. $-\frac{4}{3}$ **d.** $\frac{15}{2}$

22. $(g \circ f)(x)$ **22.** _____

a. $25x^2 + 40x - 19$ **b.** $25x^2 - 40x + 19$

c. $25x^2 - 40x - 19$ **d.** $25x^2 + 40x + 19$

23. $(g \circ f)(1)$ **22.** _____

a. –6 **b.** 4

c. 0 **d.** 1

24. $(f \circ g)(x)$ **24.** _____

a. $5x^2 - 11$ **b.** $5x^2 + 11$

c. $5x^2 + 19$ **d.** $5x^2 - 12$

25. $(f \circ g)(0)$ **25.** _____

a. -1 **b.** 0

c. 11 **d.** 15

CHAPTER 2, FORM F
COLLEGE ALGEBRA

NAME_____
DATE_____

Choose the best answer.

1a. Which of the following is the domain of $f(x) = \sqrt{x-1}$? **1a.** _____

a. $[0,1]$ **b.** $(-\infty, 1]$

c. $[1, \infty)$ **d.** $(-\infty, \infty)$

1b. Which of the following is the range of $f(x) = x^2 - 4$? **1b.** _____

a. $[-2, \infty)$ **b.** $[-4, \infty)$

c. $[-4, 4]$ **d.** $[0, \infty)$

1c. Which of the following is the domain of $f(x) = \sqrt[3]{x-7}$? **1c.** _____

a. $(-\infty, \infty)$ **b.** $(-\infty, 3]$

c. $[0, \infty)$ **d.** $[3, \infty)$

1d. Which of the following is the range of $f(x) = |x| + 2$? **1d.** _____

a. $[-2, 2]$ **b.** $[0, 2]$

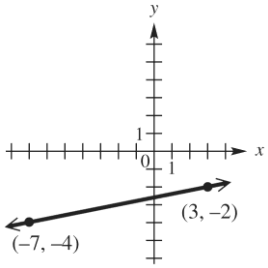
c. $[2, \infty)$ **d.** $[0, \infty)$

1e. Which of the following is the domain of $x = y^2$? **1e.** _____

a. $(-\infty, \infty)$ **b.** $[0, \infty)$

c. $(0, \infty)$ **d.** $(-\infty, 0]$

The graph shows the line that passes through $(-7, -4)$ and $(3, -2)$. Refer to it to answer Exercises 2-6.



2. What is the slope of the line? **2.** _____

a. 0 **b.** $-\frac{1}{5}$

c. $\frac{1}{5}$ **d.** 5

3. What is the distance between the two points shown? **3.** _____

a. $\sqrt{122}$ **b.** $2\sqrt{26}$

c. $2\sqrt{13}$ **d.** $2\sqrt{34}$

CHAPTER 2, FORM F

4. What are the coordinates of the midpoint of the *segment* joining the two points? **4.** _____

a. $\left(\frac{1}{2}, -\frac{11}{2}\right)$ **b.** $(-2, -1)$

c. $(-5, -1)$ **d.** $(-2, -3)$

5. Find the standard form of the equation of the line. **5.** _____

a. $5x - y = 17$ **b.** $5x + y = -17$

c. $x - 5y = 13$ **d.** $x + 5y = -13$

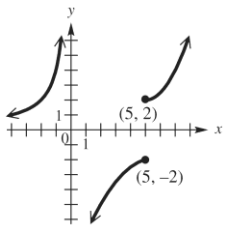
6. Find the standard form of the equation of the line. **6.** _____

a. $f(x) = \frac{1}{5}x - \frac{13}{5}$ **b.** $f(x) = -5x + 17$

c. $f(x) = 5x - 17$ **d.** $f(x) = \frac{1}{5}x + \frac{13}{5}$

Tell whether each graph is that of a function. Give the domain and range.

7. **7.** _____



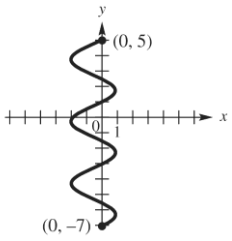
a. not a function; domain: $(-\infty, 0) \cup (0, \infty)$; range: $(-\infty, -2] \cup (0, \infty)$

b. not a function; domain: $(-\infty, \infty)$; range: $(-\infty, \infty)$

c. not a function; domain: $(-\infty, 0) \cup (0, \infty)$; range: $(-\infty, \infty)$

d. not a function; domain: $(-\infty, 0) \cup (0, \infty)$; range: $(-\infty, -2] \cup (2, \infty)$

8. **8.** _____



a. not a function; domain: $[-2, 1]$; range: $(-\infty, \infty)$

b. not a function; domain: $[-7, 5]$; range: $[-2, 1]$

c. not a function; domain: $[-7, 5]$; range: $(-\infty, \infty)$

d. not a function; domain: $[-2, 1]$; range: $[-7, 5]$

CHAPTER 2, FORM F

9. Suppose point P has coordinates $(-3, 6)$. **9.** _____

What is the equation of the horizontal line through P?

a. $x = -3$ **b.** $y = -3$

c. $x = 6$ **d.** $y = 6$

10. Find the slope-intercept form of the equation of the line passing. **10.** _____

through $(1, 2)$ perpendicular to the graph of $y = -\frac{1}{8}x + \frac{1}{3}$.

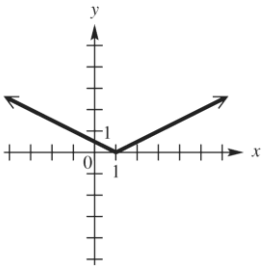
a. $y = 8x - 3$ **b.** $y = \frac{1}{8}x - \frac{1}{3}$

c. $y = -8x + 3$ **d.** $y = -\frac{1}{8}x + \frac{17}{8}$

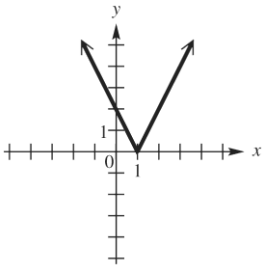
Graph each relation.

11. $f(x) = \frac{1}{2}|x + 1|$ **11.** _____

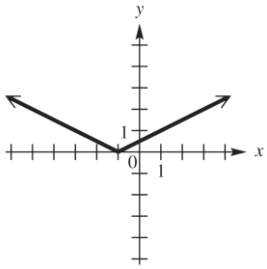
a.



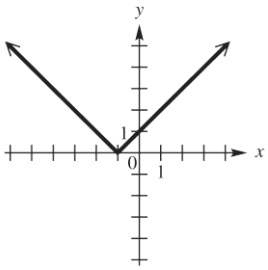
b.



c.



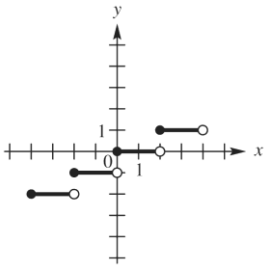
d.



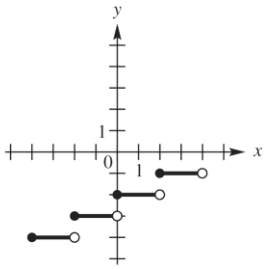
CHAPTER 2, FORM F

12. $f(x) = \left\lfloor \frac{1}{2}x \right\rfloor - 2$ **12.** _____

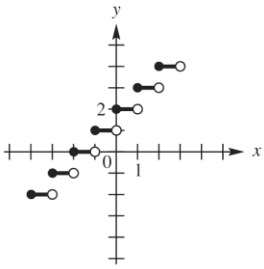
a.



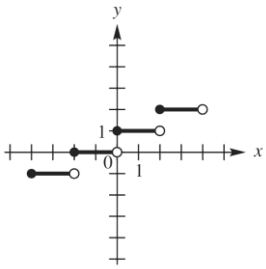
b.



c.

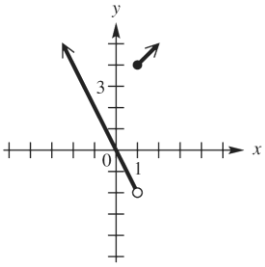


d.

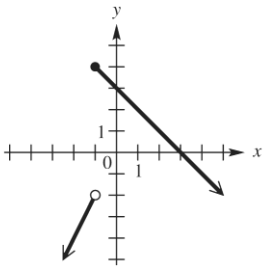


13. $f(x) = \begin{cases} -2x & \text{if } x < -1 \\ x + 3 & \text{if } x \geq -1 \end{cases}$ **13.** _____

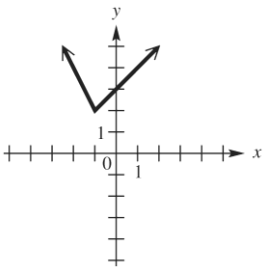
a.



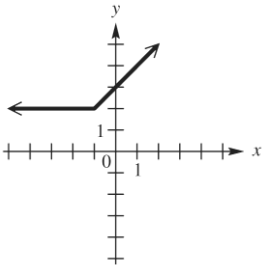
b.



c.



d.



14. Explain how the graph of $y = \sqrt{x+3} + 1$ can be obtained from the graph of $y = \sqrt{x}$. **14.** _____

a. Translate 3 units to the right and 1 units up.
b. Translate 3 units to the right and 1 units down.
c. Translate 3 units to the left and 1 units up.
d. Translate 3 units to the left and 1 units down.

CHAPTER 2, FORM F

15. Determine the symmetries of the graph of the relation $4x^2 + 9y^2 = 36$. **15.** _____

a. x-axis only **b.** y-axis only
c. Origin only **d.** x-axis, y-axis, and origin

Given $f(x) = 6x^2 + 5x - 6$ *and* $g(x) = 2x - 8$, *find each of the following. Simplify the expressions when possible.*

16. $f(-3)$ **16.** _____

a. -9 **b.** 21
c. 33 **d.** 51

17. $\dfrac{f(x+h) - f(x)}{h}$ **17.** _____

a. $12x + 6h + 5$ **b.** $12x - 6h - 5$
c. $-12x = 6h + 5$ **d.** $-12x + 6h - 5$

18. $(f \circ g)\left(\dfrac{3}{2}\right)$ **18.** _____

a. -131 **b.** 119
c. -181 **d.** 169

19. $(f + g)(x)$ **19.** _____

a. $6x^2 + 7x - 14$ **b.** $6x^2 - 7x - 14$
c. $6x^2 + 7x - 2$ **d.** $6x^2 - 3x - 2$

20. $(f + g)(0)$ **20.** _____

a. -15 **b.** -14
c. -27 **d.** 1