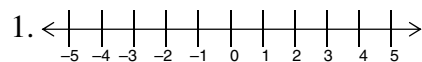


**CHAPTER TEST FORMS
AND
ANSWERS**

ELEMENTARY AND INTERMEDIATE ALGEBRA Name:

Chapter 1, Form A

1. Graph $1\frac{1}{2}$ on a number line.



2. Simplify: $|-6.75|$

2. _____

3. Write the prime factorization of 72.

3. _____

4. Simplify: $\frac{19}{76}$

4. _____

5. Find the missing number: $-\frac{2}{7} = -\frac{?}{35}$

5. _____

For Exercises 6 and 7, indicate whether the expression illustrates the commutative property of addition, the associative property of addition, the commutative property of multiplication, the associative property of multiplication, or the distributive property of multiplication over addition.

6. $3(4 \cdot 2) = (3 \cdot 4)2$

6. _____

7. $7(2 + 3) = 14 + 21$

7. _____

For Exercises 8–12, calculate.

8. $6 + (-11)$

8. _____

9. $\frac{5}{6} - \frac{3}{4}$

9. _____

10. $(-2.9)(-0.6)$

10. _____

11. $-\frac{4}{9} \div \frac{2}{3}$

11. _____

12. $(-3)^3$

12. _____

13. Find all square roots of 81.

13. _____

For Exercises 14–19, simplify.

14. $-32 \div 4 \cdot 5$

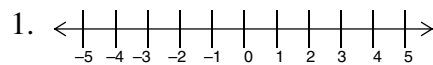
14. _____

15. $3^3 + 12 - 2(9 - 4)$ 15. _____
16. $\frac{4^2 + 20}{(3 - 5)^2}$ 16. _____
17. $-12 \div |6 - 3| + 6^2$ 17. _____
18. $(3 - 5)^3 - (5 - 3)^2$ 18. _____
19. $\sqrt{56 - 20} + [(31 - 18) - 6]$ 19. _____
20. Translate the phrase to an algebraic expression: two subtracted from the square of a number n . 20. _____
21. Sean had scores of 3 over par, 2 under par, 4 over par, and 1 under par. What is his standing after 4 rounds of golf? 21. _____
22. Evaluate $-|4x^2 + 3y^3|$ when $x = -2$ and $y = -1$. 22. _____
23. Evaluate $\sqrt{a - b}$ when $a = 44$ and $b = -56$. 23. _____
24. Use the distributive property to write an equivalent expression for $-3(5y - 7)$. 24. _____
25. Simplify: $2.8x - 7 + 3.9x + 5.8$ 25. _____

ELEMENTARY AND INTERMEDIATE ALGEBRA Name:

Chapter 1, Form B

1. Graph $-3\frac{2}{5}$ on a number line.



2. Simplify: $|-7.49|$

2. _____

3. Write the prime factorization of 128.

3. _____

4. Simplify: $\frac{56}{63}$

4. _____

5. Find the missing number: $-\frac{5}{9} = -\frac{?}{36}$

5. _____

For Exercises 6 and 7, indicate whether the expression illustrates the commutative property of addition, the associative property of addition, the commutative property of multiplication, the associative property of multiplication, or the distributive property of multiplication over addition.

6. $5 \cdot 7 = 7 \cdot 5$

6. _____

7. $3 + (4 + 5) = (3 + 4) + 5$

7. _____

For Exercises 8–12, calculate.

8. $-9 + (-5)$

8. _____

9. $\frac{7}{12} - \frac{3}{5}$

9. _____

10. $(-2.6)(-0.03)$

10. _____

11. $-\frac{7}{24} \div \frac{2}{3}$

11. _____

12. $(-3)^4$

12. _____

13. Find all square roots of 225.

13. _____

For Exercises 14–19, simplify.

14. $-96 \div 8 \cdot 2$

14. _____

15. $4^3 + 12 - 2(5 - 9)$ 15. _____
16. $\frac{4^2 + 40}{(4 - 2)^3}$ 16. _____
17. $-24 \div |4 - 10| + 5^2$ 17. _____
18. $(4 - 6)^5 - (3 - 2)^4$ 18. _____
19. $\sqrt{40 - 24} + [(11 - 15) - 8]$ 19. _____
20. At the beginning of the day Arby had \$375. He purchased a DVD player for \$219.97, a CD for \$9.97, ate lunch for \$5.95, and spent \$25 on gas for his car. How much money did he have at the end of the day? 20. _____
21. Translate into an algebraic expression: fourteen is five less than twice a number n ? 21. _____
22. Evaluate $-|2x + 3y^2|$ when $x = 3$ and $y = -4$. 22. _____
23. Evaluate $\sqrt{a - b}$ when $a = 65$ and $b = -16$. 23. _____
24. Use the distributive property to write an equivalent expression for $-5(2y - 4)$. 24. _____
25. Simplify: $3.2x - 7 + 8.4x + 6.9$ 25. _____

ELEMENTARY AND INTERMEDIATE ALGEBRA Name:

Chapter 1, Form C

1. Graph $-3\frac{3}{8}$ on a number line.



2. Simplify: $|-9.93|$

2. _____

3. Write the prime factorization of 192.

3. _____

4. Simplify: $\frac{15}{135}$

4. _____

5. Find the missing number: $-\frac{8}{9} = \frac{?}{72}$

5. _____

For Exercises 6 and 7, indicate whether the expression illustrates the commutative property of addition, the associative property of addition, the commutative property of multiplication, the associative property of multiplication, or the distributive property of multiplication over addition.

6. $9 + 4 = 4 + 9$

6. _____

7. $5(3 + 7) = 15 + 35$

7. _____

For Exercises 8–12, calculate.

8. $15 + (-9)$

8. _____

9. $\frac{5}{12} - \frac{3}{5}$

9. _____

10. $(-5.03)(-0.02)$

10. _____

11. $-\frac{4}{9} \div \frac{8}{27}$

11. _____

12. $(-4)^2$

12. _____

13. Find all square roots of 169.

13. _____

For Exercises 14–19, simplify.

14. $-64 \div 8 \cdot 2$

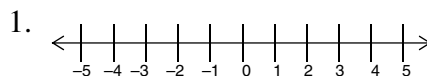
14. _____

15. $2^3 + 12 - 3(5 - 9)$ 15. _____
16. $\frac{2^3 + 40}{(5 - 7)^2}$ 16. _____
17. $-10 \div |8 - 13| + 3^2$ 17. _____
18. $(3 - 9)^2 - (8 - 4)^3$ 18. _____
19. $\sqrt{27 - 18} + [(19 - 8) + 6]$ 19. _____
20. A company had revenues of \$55,950, \$58,570, and \$65,975 for the first three months of 2005. What was their monthly average? 20. _____
21. Scott had scores of 96, 82, 88, and 96 on his math test. What would he need on his fifth test to have a 90 average? 21. _____
22. Evaluate $-|3x^3 + 5y|$ when $x = -1$ and $y = 2$. 22. _____
23. Evaluate $\sqrt{a - b}$ when $a = 49$ and $b = -72$. 23. _____
24. Use the distributive property to write an equivalent expression for $-5(4y - 6)$. 24. _____
25. Simplify: $7.4x - 6 + 8.5x + 2.9$ 25. _____

ELEMENTARY AND INTERMEDIATE ALGEBRA Name:

Chapter 1, Form D

1. Graph $-4\frac{6}{7}$ on a number line.



2. Simplify: $|-17.59|$

2. _____

3. Write the prime factorization of 360.

3. _____

4. Simplify: $\frac{38}{133}$

4. _____

5. Find the missing number: $-\frac{5}{11} = \frac{?}{121}$

5. _____

For Exercises 6 and 7, indicate whether the expression illustrates the commutative property of addition, the associative property of addition, the commutative property of multiplication, the associative property of multiplication, or the distributive property of multiplication over addition.

6. $-3(2 + 5) = -6 - 15$

6. _____

7. $5 + (4 + 9) = (5 + 4) + 9$

7. _____

For Exercises 8–12, calculate.

8. $19 + (-5)$

8. _____

9. $\frac{3}{14} - \frac{2}{3}$

9. _____

10. $(-5.06)(-4.01)$

10. _____

11. $-\frac{5}{9} \div \frac{7}{12}$

11. _____

12. $(-3)^2(-2)^3(-1)^5$

12. _____

13. Find all square roots of 256.

13. _____

For Exercises 14–19, simplify.

14. $-96 \div 4 \cdot 2^2 - (6 - 8)$

14. _____

15. $-4^3 + 13 - 3(4 - 6)^3 + \sqrt{21 - 5}$ 15. _____
16. $\frac{-3^2 + 14 - \sqrt{25}}{(1 - 5)^2 \div (-2 - 2)}$ 16. _____
17. $-16 \div |8 - 12| + 3^2 - (-5 + 1)(2 - 5)$ 17. _____
18. $(8.7 - 9.1)^2 - (1.7 - 1.4)^3$ 18. _____
19. $\sqrt{243 - 18} \div [(13 - 7)^2 - (5 - 11)^2]$ 19. _____
20. Kelly had a balance of \$536.95 in her checking account. She made payments of \$67.35, \$108.82, and \$250.97 and made a \$150 deposit. What is her final checking account balance? 20. _____
21. Translate to an algebraic expression: the square of the difference $x - y$. 21. _____
22. Evaluate $-|-3x^3y^2 - 4x^2y^3|$ when $x = -2$ and $y = -1$. 22. _____
23. Evaluate $\sqrt{a^2 - b^2}$ when $a = -5$ and $b = -3$. 23. _____
24. Use the distributive property to write an equivalent expression for $-3(5.1x - 3.7y)$. 24. _____
25. Simplify: $3.8x^2 - 5.1x - 7.2 - 2.5x^2 + 2.6x - 9.4 - x^2$ 25. _____

ELEMENTARY AND INTERMEDIATE ALGEBRA Name:

Chapter 1, Form E

1. A number line graph of the set $\{-4, -2.3, 0, \frac{2}{3}, \sqrt{6}, 5\}$ 1. _____
- (a) contains a point between 2 and 3 (c) contains exactly two points that represents integers
(b) contains no points between 0 and 1 (d) contains two points that are irrational numbers
2. Which statement is correct? 2. _____
- (a) $|-5| = -5$ (b) $-|-5| = -5$ (c) $-|-5| = 5$ (d) $|5| = -5$
3. Write the prime factorization of 180. 3. _____
- (a) $2 \cdot 3 \cdot 3 \cdot 10$ (c) $2 \cdot 2 \cdot 2 \cdot 3 \cdot 5$
(b) $3 \cdot 3 \cdot 4 \cdot 5$ (d) $2 \cdot 2 \cdot 3 \cdot 3 \cdot 5$
4. Simplify $\frac{16}{56}$. 4. _____
- (a) $\frac{1}{3}$ (b) $\frac{2}{7}$ (c) $\frac{3}{7}$ (d) $\frac{4}{14}$
5. Write $\frac{3}{7}$ with a denominator of 35. 5. _____
- (a) $\frac{6}{35}$ (b) $\frac{9}{35}$ (c) $\frac{15}{35}$ (d) $\frac{36}{35}$

For Exercises 6 and 7, name the property illustrated by the statement.

6. $(x \cdot 3) \cdot 5 = x \cdot (3 \cdot 5)$ 6. _____
- (a) commutative property of addition (c) associative property of multiplication
(b) commutative property of multiplication (d) distributive property of multiplication over addition
7. $2(4 + 7) = 8 + 14$ 7. _____
- (a) commutative property of addition (c) associative property of addition
(b) commutative property of multiplication (d) distributive property of multiplication over addition

For Exercises 8–12, calculate.

8. $-6 + (-5)$ 8. _____
(a) -11 (b) -1 (c) 1 (d) 10
9. $\frac{1}{3} - \frac{1}{4}$ 9. _____
(a) $\frac{1}{12}$ (b) $-\frac{1}{2}$ (c) 0 (d) 1
10. $(-2.7)(-3.5)$ 10. _____
(a) -6.2 (b) -0.8 (c) 6.2 (d) 9.45
11. $-\frac{4}{9} \div \frac{8}{15}$ 11. _____
(a) $-\frac{19}{17}$ (b) $-\frac{5}{2}$ (c) $\frac{5}{6}$ (d) $-\frac{5}{6}$
12. $\left(-\frac{2}{5}\right)^3$ 12. _____
(a) $\frac{6}{25}$ (b) $\frac{8}{125}$ (c) $-\frac{8}{5}$ (d) $-\frac{8}{125}$
13. In the expression, $\sqrt{17}$, 17 is called the 13. _____
(a) base (b) exponent (c) radicand (d) radical

For Exercises 14–19, simplify.

14. $\frac{6(-4) \div 3(-2)}{4(-1)}$ 14. _____
(a) -4 (b) -1 (c) 1 (d) 4
15. $8 - 2[3 - (4 - 6)]$ 15. _____
(a) -2 (b) 6 (c) 10 (d) 22
16. $\frac{3^2 + 18}{3^3 - 3}$ 16. _____
(a) -6 (b) 0 (c) $\frac{9}{8}$ (d) -3

17. $\frac{(-2)^2(6) - (-2)(10)}{-9 + |-5|}$ 17. _____
- (a) $-\frac{11}{4}$ (b) -11 (c) $\frac{11}{4}$ (d) 1
18. $24 \div \{4[8 - (5 - 7)^2]\}$ 18. _____
- (a) $\frac{1}{2}$ (b) $\frac{2}{3}$ (c) 1 (d) $\frac{3}{2}$
19. $\frac{2^3 - [\sqrt{16} - (-6)]}{\sqrt{49} - (-2) - \sqrt{81}}$ 19. _____
- (a) -1 (b) 1 (c) 0 (d) undefined
20. The daily high temperatures for the week were recorded as follows: -7° , -4° , 7° , 5° , -1° , -6° . What was the average daily high temperature for the week? 20. _____
- (a) -3° (b) -1° (c) 0° (d) 1°
21. Translate “the sum of a number and five times the cube of the number” into an algebraic expression. 21. _____
- (a) $(n + 5)^3$ (b) $n - 5n^3$ (c) $n^3 + 5n$ (d) $n + 5n^3$
22. Evaluate $3xy - 2y^2$ when $x = 2$ and $y = -1$. 22. _____
- (a) -8 (b) -2 (c) 2 (d) 8
23. Evaluate $(a - b)^2 \div c$ when $a = 6$, $b = -2$, and $c = 2$. 23. _____
- (a) -8 (b) -5 (c) 5 (d) 32
24. Which of the following statements is false? 24. _____
- (a) $2(x - 5) = 2x - 10$ (c) $a + (b + c) = a + (c + b)$
- (b) $(a - b) + c = a - (b + c)$ (d) $x^3(y^2 z^4) = (x^3 y^2)z^4$
25. Simplify $7a + 3a - 4b - 5a + 6b$. 25. _____
- (a) $10ab$ (b) $5a + 2b$ (c) $10a + 3b$ (d) $10a - 3b$

ELEMENTARY AND INTERMEDIATE ALGEBRA Name:

Chapter 2, Form A

1. Is $x^2 - 2x - 8$ an expression or an equation? Why? 1. _____
2. Is $4y - 2 = x + 12$ linear or nonlinear? Why? 2. _____
3. Check to see if $\frac{2}{3}$ is a solution of 3. _____
 $6 - (3x + 2) = 6x - 4.$

For Exercises 4–9, solve and check.

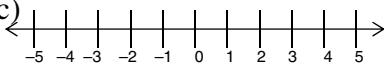
4. $3x + 6 = -12$ 4. _____
5. $5x + 3.3 = 4x - 7.2$ 5. _____
6. $7 - 3(2x - 5) = 3x + 10$ 6. _____
7. $5(x - 1) = 6 + 3x + 3(x - 2)$ 7. _____
8. $\frac{x}{3} - 5 = \frac{x}{5} - 3$ 8. _____
9. $-\frac{1}{2}(6x - 3) = \frac{1}{3}x - 1$ 9. _____

For Exercises 10–14, solve for the indicated variable.

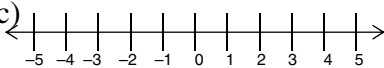
10. $4x - 2y = 12$; y 10. _____
11. $I = prt$; t 11. _____
12. $V = \frac{1}{3}\pi r^2 h$; h 12. _____
13. $A = \frac{1}{2}h(B + b)$; b 13. _____
14. $A = \frac{m + 2d}{3}$; m 14. _____

For Exercises 15–19: a. Solve.
 b. Write the solution set.
 c. Graph the solution set.

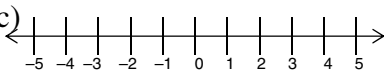
15. $6x + 12 > -12$

15. a) _____
 b) _____
 c) 

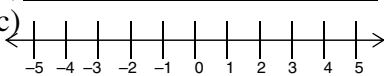
16. $-3(2x - 4) < 2(-12 + 6x)$

16. a) _____
 b) _____
 c) 


17. $6(x + 1) \leq 4 - 8x + 3(5x - 1)$

17. a) _____
 b) _____
 c) 

18. $-1.3x - 0.2 \geq 1.4x - 2.9$

18. a) _____
 b) _____
 c) 

19. $\frac{1}{2}(3x - 1) \leq \frac{1}{5}(6x - 7)$

19. a) _____
 b) _____
 c) 

For Exercises 20–25, translate and then solve.

20. Four less than three times a number is five. Find the number.

20. _____

21. One number is three greater than six times the other number. Their sum is seventeen. Find the numbers.

21. _____

22. The Brown family is planning a trip to Boston. If they travel at an average speed of 68 mph, how long will it take them to complete a 442 mile trip?

22. _____

23. A Celsius temperature of 45° is $\frac{5}{9}$ the difference between the Fahrenheit temperature and 32. Find the Fahrenheit temperature.

23. _____

24. The fourth quarter profit goal for a computer company is at least \$750,000. The costs for that same quarter are \$459,000. Find the revenue that must be generated for the company to achieve its goal? 24. _____
25. The surface area of a rectangular solid needs to be at least 3950 square meters. If the length of the solid is 40 meters and the height is 15 meters, find the range of values for the width. 25. _____

ELEMENTARY AND INTERMEDIATE ALGEBRA Name:

Chapter 2, Form B

1. Is $6x - 3$ an expression or an equation? Why? 1. _____
2. Is $4x^2 - 2y = 12$ linear or nonlinear? Why? 2. _____
3. Check to see if $\frac{3}{4}$ is a solution of $6 - (8x + 2) = 12x - 11$. 3. _____

For Exercises 4–9, solve and check.

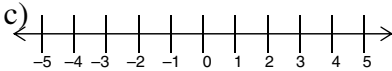
4. $5x + 9 = -21$ 4. _____
5. $8x + 4.7 = 7x - 2.5$ 5. _____
6. $2 - (3x + 4) - (10 - 3x) = 5x - 2$ 6. _____
7. $3(x - 4) - 10 = -5x + 2(x + 7)$ 7. _____
8. $\frac{2}{5}x - \frac{2}{3} = \frac{13}{3} - \frac{2}{5}x$ 8. _____
9. $-\frac{5}{6}(x - 3) = -\frac{2}{3}x - 1$ 9. _____

For Exercises 10–14, solve for the indicated variable.

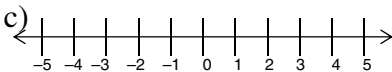
10. $5x - 4y = -20$; y 10. _____
11. $A = \frac{1}{2}bh$; b 11. _____
12. $P = a + b + c$; b 12. _____
13. $P = \frac{KT}{V}$; T 13. _____
14. $F = \frac{9}{5}C + 32$; C 14. _____

For Exercises 15–19: *a. Solve.*
b. Write the solution set.
c. Graph the solution set.


15. $-3x + 2 > -4$

15. a) _____
 b) _____
 c) 

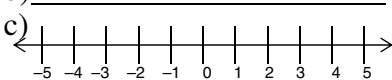
16. $-2(3x - 7) < 2(-5 + 3x)$

16. a) _____
 b) _____
 c) 

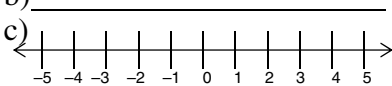
17. $4(2x + 5) \geq 6 + 4x + (10 + 3x)$

17. a) _____
 b) _____
 c) 

18. $3.5x - 4.5 \geq 3.6x - 3.9$

18. a) _____
 b) _____
 c) 

19. $\frac{1}{3}(3 - x) \leq \frac{2}{5}(15 - 5x)$

19. a) _____
 b) _____
 c) 

For Exercises 20–25, translate and then solve.

20. Three times the difference of a number and five is equal to twice the number and three. Find the number.

20. _____

21. Tina is ten years younger than her friend. The sum of their ages is 100. How old is Tina?

21. _____

22. The Brown family is planning a trip to Atlanta. If they travel at an average speed of 68 mph, how long will it take them to complete a 510 mile trip?

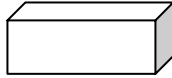
22. _____

23. The cost of a new car increased 10% from the previous year. The current price of the car is \$26,400. What was the price of the car last year?

23. _____

24. Mike can lay 36 bricks per hour. If he needs to lay at least 252 bricks by the end of the day, what is the range of hours that he should work? 24. _____

25. The volume of a rectangular solid needs to be at least 3840 square meters. If the length of the solid is 20 meters and the height is 16 meters, find the range of values for the width. 25. _____



ELEMENTARY AND INTERMEDIATE ALGEBRA Name:

Chapter 2, Form C

1. Is $7x - 9y + 3xy$ an expression or an equation? Why? 1. _____
2. Is $5y - 17 = 2x + 14$ linear or nonlinear? Why? 2. _____
3. Check to see if 2 is a solution of $5(x - 2) = 16 - 8x$. 3. _____

For Exercises 4–9, solve and check.

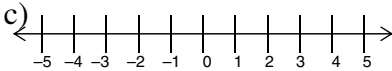
4. $3x + 3 = -12$ 4. _____
5. $4x + 6.9 = 5x - 6.1$ 5. _____
6. $6 - (x + 7) - (3x - 5) = -2x - 10$ 6. _____
7. $6(2x + 1) - 3 = 11 + 6x + 3(2x - 9)$ 7. _____
8. $\frac{2}{3}x - \frac{2}{5} = \frac{3}{5} - \frac{2}{3}x$ 8. _____
9. $-\frac{2}{5}(5x - 10) = \frac{1}{3}x - 17$ 9. _____

For Exercises 10–14, solve for the indicated variable.

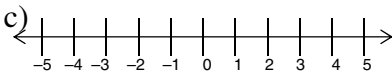
10. $-3x - 6y = 12$; y 10. _____
11. $C = 2\pi r$; r 11. _____
12. $A = \frac{1}{3}(a + b + c)$; c 12. _____
13. $K = \frac{1}{2}mv^2$; m 13. _____
14. $\frac{3a}{2} = \frac{3(2 - c)}{4}$; c 14. _____

For Exercises 15–19: *a. Solve.*
b. Write the solution set.
c. Graph the solution set.


15. $-2x + 10 > 4$

15. a) _____
 b) _____
 c) 

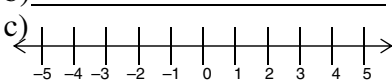
16. $3(2x - 4) < -2(x - 2)$

16. a) _____
 b) _____
 c) 

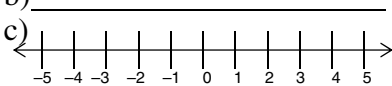
17. $10 - 3(2x + 2) \geq 8 + 7x + 2(5 - 3x)$

17. a) _____
 b) _____
 c) 

18. $5.7x - 2.4 \geq 5.8x - 2.8$

18. a) _____
 b) _____
 c) 

19. $\frac{1}{4}(8 - 2x) \geq \frac{2}{3}(12 - 3x)$

19. a) _____
 b) _____
 c) 

For Exercises 20–25, translate and then solve.

20. Six less than three times the sum of a number and five is fifteen. Find the number.

20. _____

21. The length of a field is 72 yards. This is 12 yards less than twice the width of the field. Find the width of the field.

21. _____

22. Arby’s salary increased 10% from the previous year. His current salary is \$62,700. What was his salary last year?

22. _____

23. A car uses 8 gallons of gasoline while traveling 168 miles. How many gallons will be used on a trip of 420 miles?

23. _____

24. The lowest grade for a B is 80. Henry has scores of 79, 76, and 83. What is the range of scores that Bill will need to make on his fourth test if he wants to make a B? 24. _____
25. The area of a rectangular garden needs to be at least 4560 square yards. If the length is 60 yards, find the range of values for the width. 25. _____

ELEMENTARY AND INTERMEDIATE ALGEBRA Name:

Chapter 2, Form D

1. Is $4x - 5 = -9y$ an expression or an equation?
Why? 1. _____
2. Is $5x^3 - 12 = 3x + 17$ linear or nonlinear? Why? 2. _____
3. Check to see if $\frac{1}{2}$ is a solution of
 $5 - (9 - 6x) = 2x - 2$. 3. _____

For Exercises 4–9, solve and check.

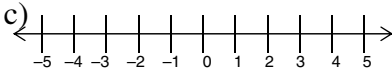
4. $11x + 22 + 4x = 10 - 2x + 12$ 4. _____
5. $1.4x - 0.6(8 - x) = 35(0.24)$ 5. _____
6. $7x - 3(2x - 5) + 5 + 3x = 4x + 20$ 6. _____
7. $-4[x - 2(2x - 3)] + 1 = 2x - 3$ 7. _____
8. $\frac{n}{6} = 2 - \frac{n}{2}$ 8. _____
9. $\frac{2x-1}{3} + \frac{x+1}{4} = \frac{7}{4}$ 9. _____

For Exercises 10–14, solve for the indicated variable.

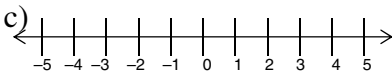
10. $-2x + 4y - 12 = 0$; x 10. _____
11. $S = \frac{gt^2}{2}$; g 11. _____
12. $A = P + Prt$; r 12. _____
13. $S = \frac{n(a + \ell)}{2}$; a 13. _____
14. $A = \frac{1}{2}h(b_1 + b_2)$; b_1 14. _____

For Exercises 15–19: *a. Solve.*
b. Write the solution set.
c. Graph the solution set.


15. $4(1 - 3y) > 9 - 7y$

15. a) _____
 b) _____
 c) 


16. $-5(3x - 4) < 4(-6x - 4)$

16. a) _____
 b) _____
 c) 

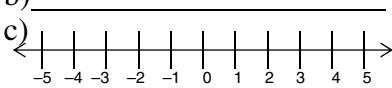
17. $9 - 3(2 + 3a) < 3(4a - 6)$

17. a) _____
 b) _____
 c) 

18. $0.44(x - 2) + 0.02x \geq 0.12x + 0.07(2)$

18. a) _____
 b) _____
 c) 

19. $\frac{1}{6}(b - 3) \leq \frac{1}{4}(2b - 1)$

19. a) _____
 b) _____
 c) 

For Exercises 20–25, translate and then solve.

20. The sum of two numbers is twenty-one. Three times the smaller number is two less than twice the larger number. Find the two numbers.

20. _____

21. One angle of a triangle is 8° greater than the smallest angle. The third angle is 4° greater than twice the smallest angle. Find the measure of each angle.

21. _____

22. Your weekly salary is \$480 and you receive a 5% raise. What is your new weekly salary?

22. _____

23. How much of an alloy that is 20% copper should be mixed with 200 ounces of an alloy that is 50% copper to get an alloy that is 30% copper?

23. _____

24. A storage box is designed so that its surface area is at least 2840 square inches. If the length is 30 inches and the width is 28 inches, find the range of values for the height. 24. _____
25. Sean must have an average of at least 90 to earn an A in his algebra course. His first four tests grades were 93, 82, 86, and 91. What must be the range of scores on the fifth test so that Sean can earn an A? 25. _____

For Exercises 1–7, solve and check.

1. $3a + 12 = 3$ 1. _____
(a) -9 (b) -3 (c) 9 (d) 15
2. $1.2 - .7x = -1 + 1.5x$ 2. _____
(a) -1 (b) $\frac{1}{4}$ (c) 1 (d) 4
3. $-(1 - 2x) + 6 = 3(2x - 1)$ 3. _____
(a) $\frac{3}{2}$ (b) 2 (c) $\frac{5}{2}$ (d) 4
4. $6x - (3x - 5) = 7 - 3(4 - x)$ 4. _____
(a) 0 (b) 2 (c) \emptyset (d) $\{x|x \text{ is a real number}\}$
5. $2(x - 5) - 2(2 - x) = 2$ 5. _____
(a) -1 (b) 0 (c) 2 (d) 4
6. $\frac{x}{3} - \frac{1}{2} = -5 + \frac{x}{2} + 8$ 6. _____
(a) -21 (b) -6 (c) 6 (d) 21
7. $\frac{y}{5} - \frac{y}{4} = \frac{3}{10}$ 7. _____
(a) $-\frac{1}{6}$ (b) -6 (c) $\frac{1}{6}$ (d) 6

For Exercises 8–12, solve for the indicated variable.

8. $6(2x + y) = 3z + 7$; y 8. _____

(a) $y = \frac{-9xz + 7}{6}$

(c) $\frac{6}{3z - 12x + 7}$

(b) $\frac{3z - 12x + 7}{6}$

(d) $3z - 12x + 1$

9. $3L + 6W = 5$; W 9. _____

(a) $W = \frac{5 - 3L}{6}$

(c) $W = \frac{5 - 6L}{3}$

(b) $W = \frac{3L - 5}{6}$

(d) $L = \frac{5 - 6W}{3}$

10. $cd = ef^2g$; g 10. _____

(a) $g = cd - ef^2$

(c) $g = \frac{cd}{ef^2}$

(b) $g = \frac{cd}{2} - ef$

(d) $g = \frac{ef^2}{cd}$

11. $\frac{2a + 3b}{5} = c$; a 11. _____

(a) $a = \frac{2}{5c - 3b}$

(c) $a = \frac{5}{2}c + \frac{3}{2}b$

(b) $a = \frac{1}{2}c - \frac{3}{10}b$

(d) $a = \frac{5c - 3b}{2}$

12. $A = P + Prt$; t 12. _____

(a) $t = \frac{A}{P - Pr}$

(c) $t = P - A - Pr$

(b) $t = \frac{P + Pr}{A}$

(d) $t = \frac{A - P}{Pr}$

For Exercises 13–17, solve and write the solution set.

13. $-2a + 25 > -3$ 13. _____

- (a) $\{a \mid a > -14\}$ (b) $\{a \mid a < -14\}$ (c) $\{a \mid a > 14\}$ (d) $\{a \mid a < 14\}$

14. $5y + 4 \leq 3y - 2$ 14. _____

- (a) $\{y \mid y \leq -3\}$ (b) $\{y \mid y \geq -3\}$ (c) $\{y \mid y \leq 3\}$ (d) $\{y \mid y \geq 3\}$

15. $-\frac{3}{7}a + \frac{5}{6} \geq -\frac{1}{2}$ 15. _____

- (a) $\{a \mid a \leq -\frac{7}{9}\}$ (b) $\{a \mid a \geq \frac{7}{9}\}$ (c) $\{a \mid a \leq \frac{28}{9}\}$ (d) $\{a \mid a \geq \frac{28}{9}\}$

16. $4(6b - 1) + 4 > -24$ 16. _____

- (a) $\{b \mid b > -\frac{4}{3}\}$ (b) $\{b \mid b < -\frac{4}{3}\}$ (c) $\{b \mid b > -1\}$ (d) $\{b \mid b < -1\}$

17. $4(a - 3) \geq 15 - 5(3 - 2a)$ 17. _____

- (a) $\{a \mid a \geq -2\}$ (b) $\{a \mid a \leq -2\}$ (c) $\{a \mid a \geq \frac{7}{4}\}$ (d) $\{a \mid a \geq \frac{7}{4}\}$

18. Match the verbal statement with the correct equation. 18. _____
Three times the sum of a number n and 4 is 36.

- (a) $3n + 4 = 36$ (b) $n + 4 = 3(36)$ (c) $n + 4(3) = 36$ (d) $3(n + 4) = 36$

19. You make 60 monthly payments of \$375 each to buy a used car. The amount financed is \$25,000. An equation to represent the total interest paid is: 19. _____

(a) $I = 25,000 - 60(375)$ (c) $I = 375 - \frac{25,000}{60}$

(b) $I = 60(375) - 25,000$ (d) $I = \frac{25,000}{60} - 375$

20. The volume of a box is 3360 cubic inches. If the length of the box is 20 inches and the width is 14 inches, find the height. 20. _____

- (a) 9 inches (b) 10 inches (c) 11 inches (d) 12 inches

21. The total repair costs for an air conditioning unit is \$600. This includes \$525 for parts and labor costs of \$30 per hour. How many hours of labor expenses are included? 21. _____
- (a) 2.5 hours (b) 3 hours (c) 7 hours (d) 10 hours
22. Two planes leave an airport at the same time. One plane flies north at 525 mph and the other flies south at 475 mph. In hour many hours will the planes be 3500 miles apart? 22. _____
- (a) 2.5 hours (b) 3 hours (c) 3.5 hours (d) 4 hours
23. Translate the statement into an inequality. 23. _____
Five less than twice a number n is not less than 17.
- (a) $2n - 5 \leq 17$ (b) $n^2 - 5 \leq 17$ (c) $2n - 5 \geq 17$ (d) $5 - 2n \geq 17$
24. Bob's monthly income varies. If he made \$2000 in January, \$1500 in February, \$2200 in March, and \$2700 in April, how much must he make in May to have a monthly average of at least \$2250? 24. _____
- (a) \$1650 (b) \$2400 (c) \$2850 (d) \$6600
25. Tim has grades of 76, 89, and 73 on his algebra tests. What grade must he make on his fourth test to have an average of at least 80? 25. _____
- (a) 78 (b) 79 (c) 80 (d) 82

ELEMENTARY AND INTERMEDIATE ALGEBRA Name:

Chapter 3, Form A

1. A step rises 8 inches for every 24 inches of horizontal length. Write the ratio of rise to horizontal length as a fraction in simplest form. 1. _____
2. An eighteen ounce box of rice costs \$2.48. Write the unit ratio of price to weight. 2. _____

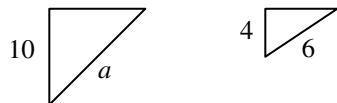
For Exercises 3 and 4, solve for the missing number.

3. $\frac{b}{21} = \frac{-3}{7}$ 3. _____

4. $\frac{-6}{a} = \frac{54}{72}$ 4. _____

5. Amy drives 330 miles using 15 gallons of gas. How many gallons of gas should she expect to use on a similar trip of 462 miles? 5. _____

6. The following triangles are similar. Find the length of the missing side. 6. _____



For Exercises 7 and 8, write each percent as a decimal and as a fraction in simplest form.

7. 38% 7. _____

8. $6\frac{3}{5}\%$ 8. _____

For Exercises 9 and 10, write as a percent.

9. 4.7 9. _____

10. $\frac{3}{8}$ 10. _____

For Exercises 11–25, solve.

11. 24 is what percent of 480? 11. _____

12. 30.2% of 60 is what number? 12. _____

13. 80 is 4% of what number? 13. _____
14. Mark was told that his hourly wage would increase by $7\frac{1}{2}\%$. If his current wage is \$12 an hour, what will be his new wage after the raise? 14. _____
15. The enrollment at a college fell from 9600 to 9200. What is the percent of decrease? 15. _____
16. A software package that regularly sells for \$65 is on sale for \$46.80. What is the discount rate? 16. _____
17. Two cars start from the same point and travel in opposite directions. One car goes 15 mph faster than the other. In three hours the cars are 315 miles apart. What is the rate for the faster car? 17. _____
18. A Best Buy ad has a laptop computer on sale for 20% off of the regular price. If the regular price is \$899, what is the sale price? 18. _____
19. The length of a field is four yards less than four times its width. The perimeter is 202 yards. Find the dimensions of the field. 19. _____
20. The measures of the two smaller angles in a triangle are the same. The third angle is twice the measure of the smaller angles. Find the measure of each angle. 20. _____
21. The sum of two consecutive even integers is 314. Find the integers. 21. _____
22. Amy earns \$55 per week plus 11% of her weekly sales. If Amy made \$462 last week, what was her sales? 22. _____
23. The length of a rectangular area is 3 feet less than twice its width. The perimeter of the rectangle is 132 feet. Find the length and width of the rectangular area. 23. _____
24. Mary invests \$24,000 in two separate accounts. One earns 6% simple interest and the other 9%. If she earned a total of \$1740, how much did she invest at each rate? 24. _____
25. A total of 92 milliliters of a 61% saline solution is mixed with an 18% saline solution to make a 41% solution. How much of the 18% saline solution is needed? 25. _____

ELEMENTARY AND INTERMEDIATE ALGEBRA Name:

Chapter 3, Form B

1. On a map, if one inch represents 50 miles, what length does $3\frac{1}{2}$ inches represent? 1. _____
2. A dozen apples costs \$4.20, how much will 9 apples cost? 2. _____

For Exercises 3 and 4, solve for the missing number.

3. $\frac{-9}{a} = \frac{8}{72}$ 3. _____
4. $\frac{3}{x} = \frac{0.9}{4.8}$ 4. _____
5. If 90 feet of wire weighs 27 pounds, what will 120 feet of the same type wire weigh? 5. _____
6. Gerry drives 130 miles in 2 hours. At this rate, how far will he drive in 5.5 hours? 6. _____

For Exercises 7 and 8, write each percent as a decimal and as a fraction in simplest form.

7. 56% 7. _____
8. $5\frac{1}{4}\%$ 8. _____

For Exercises 9 and 10, write as a percent.

9. 5.05 9. _____
10. $\frac{17}{25}$ 10. _____

For Exercises 11–25, solve.

11. 105 is 150% of what number? 11. _____
12. 24 is what percent of 160? 12. _____
13. 12.3% of 70 is what number? 13. _____

14. 25 is $6\frac{1}{4}\%$ of what number? 14. _____
15. The sum of two numbers is 66. The larger number is six less than three times the smaller number. Find the larger number. 15. _____
16. The sum of three consecutive integers is 252. Find the integers. 16. _____
17. Paul's salary was increased by 20% to \$26,400. What was his salary before the increase? 17. _____
18. A hockey arena increased its seating capacity of 9600 by 6%? How many seats were added to the arena? 18. _____
19. The enrollment at a college rose from 8400 to 9600. What is the percent of increase? 19. _____
20. Find two consecutive integers such that four times the larger is 334 more than the smaller. Find the two integers. 20. _____
21. The sum of two numbers is 24. Seven times the smaller number is five times the larger number. Find the two numbers. 21. _____
22. Two cyclists start from the same point and ride in opposite directions. One cyclist rides 4 mph faster than the other. In three hours the cyclists are 60 miles apart. What is the rate for the faster cyclist? 22. _____
23. The length of a rectangular area is 4 feet less than twice its width. The perimeter of the rectangle is 88 feet. Find the length of the rectangular area. 23. _____
24. Al invests \$30,000 in two separate accounts. One earns 8% simple interest and the other 6%. If he earned a total of \$2160, how much did he invest at each rate? 24. _____
25. How many pounds of cashews that cost \$2.40 per pound must be mixed with 3 pounds of peanuts that cost \$1.20 per pound to make a mixture that sells for \$2.04 per pound? 25. _____

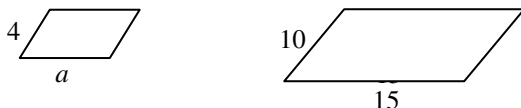
ELEMENTARY AND INTERMEDIATE ALGEBRA Name:

Chapter 3, Form C

1. On a map, if one inch represents 40 miles, what length does $2\frac{1}{2}$ inches represent? 1. _____
2. The price of a 12.5 ounce box of cereal is \$2.85. Write the unit ratio of price to weight. 2. _____

For Exercises 3 and 4, solve for the missing number.

3. $\frac{-4}{x} = \frac{48}{72}$ 3. _____
4. $\frac{x}{24} = \frac{-7}{3}$ 4. _____
5. Robby drives 168 miles using 8 gallons of gas. How many gallons of gas should he expect to use on a similar trip of 294 miles? 5. _____
6. The following triangles are similar. Find the length of the missing side. 6. _____



For Exercises 7 and 8, write each percent as a decimal and as a fraction in simplest form.

7. $15\frac{4}{5}\%$ 7. _____
8. 30.5% 8. _____

For Exercises 9 and 10, write as a percent.

9. 29.5 9. _____
10. $\frac{13}{25}$ 10. _____

For Exercises 11–25, solve.

11. 22 is 200% of what number? 11. _____
12. 105 is what percent of 420? 12. _____

13. 30.5% of 60 is what number? 13. _____
14. What number is $2\frac{3}{4}$ % of 2200? 14. _____
15. What percent is 360 out of 1440? 15. _____
16. Pepe's salary was increased by 15% to \$46,000. What was her salary before the increase? 16. _____
17. The sum of three consecutive even integers is -54 . Find the integers. 17. _____
18. A radio, which regularly sells for \$40, is on sale for \$30. What is the discount rate? 18. _____
19. In an isosceles triangle, one angle is 12° more than twice the measure of one of the equal angles. What is the measure of each angle? 19. _____
20. One number is 8 less than another number. The sum of four times the larger and twice the smaller is 20. Find the larger number. 20. _____
21. The perimeter of a triangle is 74 mm. The second side is 24 mm longer than the smallest side. The third side is three times the smallest. Find the measure of each side. 21. _____
22. A truck leaves a station at 11 A.M. and travels at a speed of 45 mph. At noon, a van leaves the same place and travels the same route at a rate of 65 mph. At what time does the van overtake the truck? 22. _____
23. The perimeter of a triangle is 72 cm. One side is four times the smallest side. The third side is 24 cm longer than the smallest side. Find the measure of each side. 23. _____
24. Tom invests \$18,750 in two separate accounts. One earns 10% simple interest and the other 12%. If he earned a total of \$2117, how much did he invest at 10%? 24. _____
25. How many liters of a 20% salt solution must be added to 8 liters of a 5% salt solution to yield an alloy that is a 10% salt solution? 25. _____

ELEMENTARY AND INTERMEDIATE ALGEBRA Name:

Chapter 3, Form D

1. Write the ratio $4\frac{1}{2}$ to $3\frac{1}{4}$ as a fraction in reduced form.
2. A thirteen ounce box of coffee costs \$2.99. Write the unit ratio of price to weight.

1. _____

2. _____

For Exercises 3 and 4, solve for the missing number.

3. $\frac{-6}{a} = \frac{40}{51}$

3. _____

4. $\frac{3\frac{1}{2}}{-3\frac{3}{8}} = \frac{x}{-3\frac{3}{4}}$

4. _____

5. If you can feed 307 birds for a month for \$10.50, how many birds can you feed for a month for \$45?
6. Arby drives 216 miles and uses 9 gallons of gasoline. At this rate, how many gallons will he use for a trip of 1572 miles?

5. _____

6. _____

For Exercises 7 and 8, write each percent as a decimal and as a fraction in simplest form.

7. 240%

7. _____

8. $12\frac{1}{2}\%$

8. _____

For Exercises 9 and 10, write as a percent.

9. 0.075

9. _____

10. $\frac{7}{15}$

10. _____

For Exercises 11–25, solve.

11. What number is $\frac{1}{2}\%$ of 600?

11. _____

12. 19 is what percent of 76?

12. _____

13. 12.8% of 15,000 is what number? 13. _____
14. 66 is 22% of what number? 14. _____
15. What percent is 96 out of 1600? 15. _____
16. Nick received a commission of \$720 on the sale of a machine. If his commission rate was 4% of the selling price, what was the selling price? 16. _____
17. The price of a new flat screen television dropped from \$2400 to \$1800. What is the percent of decrease? 17. _____
18. The price of a \$9.90 gallon of paint was increased by 15%. What is the new price? 18. _____
19. A software package that regularly sells for \$59.95 is on sale for \$47.96. What is the discount rate? 19. _____
20. The sum of Judy's age and Jerry's age is 51. Judy is 2 years older than 6 times Jerry's age. How old is Jerry? 20. _____
21. Find the measures of the three angles of a triangle if the second angle is 8° less than three times the first and the third is 1° more than seven times the first. 21. _____
22. Tim leaves Charlotte at 9:00 A.M. and drives at a speed of 45 mph. At 10:00 A.M. his son leaves from the same place and travels the same route at 65 mph. At what time does the son's car overtake the father's car? 22. _____
23. The perimeter of a triangle is 39 m. The first side is 3 m more than twice the second side. The third side is 4 m less than twice the second side. Find the length of the longest side. 23. _____
24. Henry invests \$25,000 in two separate accounts. One earns 8% simple interest and the other 9%. If he earned a total of \$2135, how much did he invest at 8%? 24. _____
25. A nut mixture is formed by combining almonds that cost \$3.89 per pound with pecans that costs \$2.49 per pound. How many pounds of each were used to make a 100-pound mixture that sells for \$3.47 per pound? 25. _____

For Exercises 1–4, solve for the missing number.

1. $\frac{10}{35} = \frac{x}{14}$ 1. _____

- (a) 4 (b) 8 (c) 240 (d) 490

2. $\frac{b}{1.7} = \frac{10}{3.2}$ 2. _____

- (a) 0.544 (b) 1.435 (c) 3.24 (d) 5.3125

3. $\frac{-6}{a} = \frac{27}{18}$ 3. _____

- (a) -9 (b) -4 (c) 4 (d) 9

4. $\frac{2\frac{1}{2}}{-7\frac{1}{2}} = \frac{x}{-1\frac{1}{2}}$ 4. _____

- (a) $-\frac{1}{2}$ (b) $\frac{1}{2}$ (c) -2 (d) 2

5. Write 42% as a fraction. 5. _____

- (a) 0.42 (b) $\frac{42}{100}$ (c) $4\frac{2}{100}$ (d) $\frac{21}{50}$

6. Write 0.7% as a decimal. 6. _____

- (a) 0.007 (b) 0.07 (c) 7 (d) 70

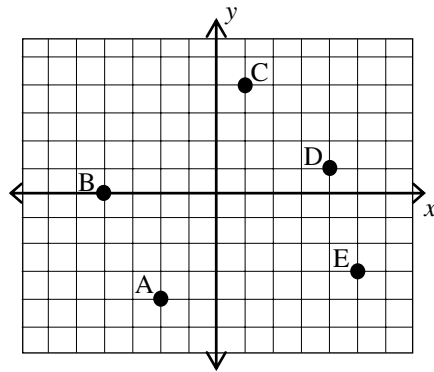
7. Write $6\frac{3}{4}\%$ as a fraction. 7. _____

- (a) $\frac{18}{40}$ (b) $\frac{6}{25}$ (c) $\frac{27}{100}$ (d) $\frac{27}{400}$

8. Write $\frac{15}{4}$ as a percent. 8. _____
(a) 0.0375% (b) 3.75% (c) 40% (d) 375%
9. Write $0.\overline{6}$ as a percent. 9. _____
(a) 0.006% (b) $\frac{1}{6}\%$ (c) $66\frac{2}{3}\%$ (d) 66.66%
10. Write $\frac{6}{25}$ as a percent. 10. _____
(a) 12% (b) 16.5% (c) 24% (d) 240%
11. Write $\frac{3}{8}$ as a percent. 11. _____
(a) 37% (b) 3.75% (c) 37.5% (d) 375%
- For Exercises 12–25, solve.***
12. 44.85 is what percent of 345? 12. _____
(a) 12% (b) 13% (c) 15% (d) 23%
13. 30% of 240 is what number? 13. _____
(a) 24 (b) 72 (c) 80 (d) 720
14. 60 is 150% of what number? 14. _____
(a) 9 (b) 40 (c) 90 (d) 400
15. What percent is 180 out of 80? 15. _____
(a) 0.44% (b) 2.25% (c) 44.4% (d) 225%
16. 187.5 is $12\frac{1}{2}\%$ of what number? 16. _____
(a) 0.06 (b) 15 (c) 1500 (d) 2343.75

17. $6\frac{1}{2}\%$ of 84.5 is what number? 17. _____
(a) 5.4925 (b) 13 (c) 549.25 (d) 1300
18. A plumber charges \$50 per service call, then \$30 an hour after the first hour. If the bill comes to \$140, how many hours did the plumber work? 18. _____
(a) 2 hours (b) 3 hours (c) 4 hours (d) 5 hours
19. A ski vest sold for \$78 last year. This year, the price has been increased to \$82.68. What is the percent of increase? 19. _____
(a) 6% (b) 7% (c) 9% (d) 10%
20. The sum of three consecutive odd integers is 87. What is the middle integer? 20. _____
(a) 11 (b) 25 (c) 29 (d) 31
21. If three is added to twice a number, the result equals five less than six times the number. Find the number. 21. _____
(a) 0.25 (b) 0.5 (c) 1 (d) 2
22. Two steamboats leave St. Louis at the same time traveling in opposite directions at speeds of 18 and 25 mph. In how many hours will the steamboats be 129 miles apart? 22. _____
(a) 2.5 hours (b) 3 hours (c) 3.5 hours (d) 4 hours
23. If the two equal angles in an isosceles triangle are twice the third angle, what is the measure of the third angle? 23. _____
(a) 36° (b) 45° (c) 60° (d) 72°
24. Amy invests \$50,000 in two separate accounts. One earns 5% simple interest and the other 6%. If she earned a total of \$2720, how much did she invest at 5%? 24. _____
(a) \$20,000 (b) \$22,000 (c) \$25,000 (d) \$28,000
25. Pam has \$5 in quarters and half-dollars. If she has twice as many quarters as half dollars, how many of each type of coin, does she have? 25. _____
(a) 5 quarters, 10 half-dollars (c) 20 quarters, 10 half-dollars
(b) 10 quarters, 5 half-dollars (d) 10 quarters, 20 half-dollars

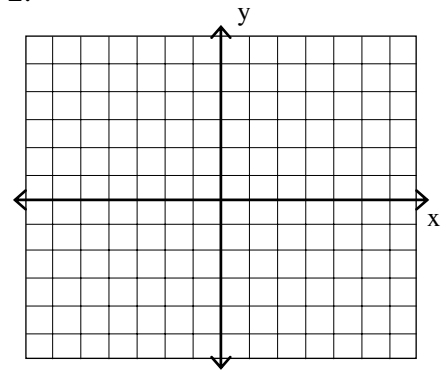
1. Determine the coordinates for each point.



1. _____

2. Plot and label the points indicated by the coordinate pairs. $(5, -2)$, $(-4, 3)$, $(-2, 0)$, $(3, 2)$, $(0, -4)$

2.



3. State the quadrant in which $(-31, -2\frac{2}{3})$ is located.

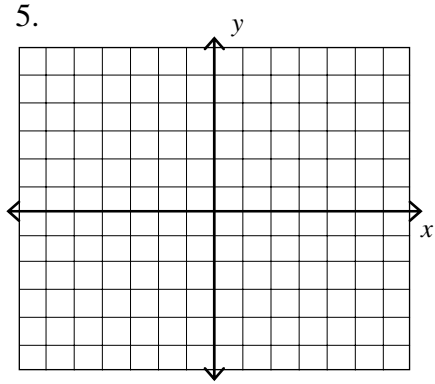
3. _____

4. Determine whether $(5, 6)$ is a solution for $y = -\frac{2}{5}x + 8$.

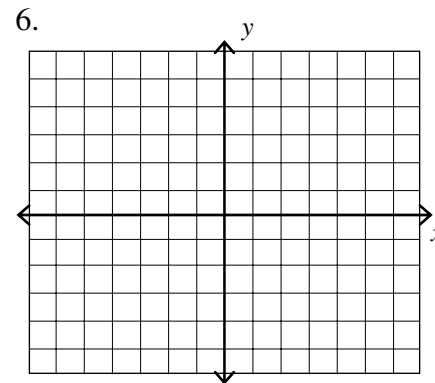
4. _____

For Exercises 5–8, find the coordinates for the x- and y-intercepts for each of the following, then graph.

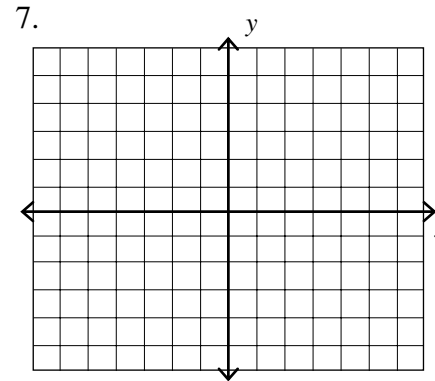
5. $x + 3y = -6$



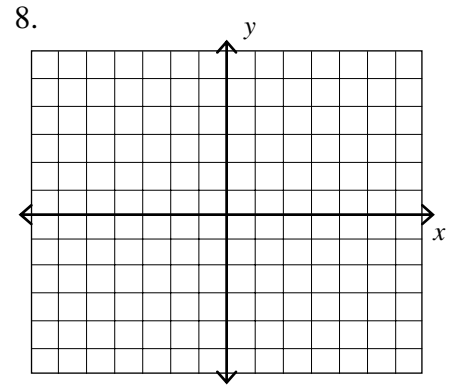
6. $2x - 5y = -10$



7. $y = -\frac{2}{3}x$



8. $-4x + y = 4$



For Exercises 9 and 10, determine the slope and the coordinates of the y-intercept.

9. $y = \frac{2}{5}x + 3$

9. _____

10. $2x - 4y = 8$

10. _____

For Exercises 11 and 12, determine the slope of the line through the given points.

11. $(2, 3), (5, 2)$

11. _____

12. $(3, -4), (-5, 6)$

12. _____

For Exercises 13 and 14, write the equation of the line in slope-intercept form.

13. $m = \frac{2}{3}$; y-intercept $(0, -3)$

13. _____

14. Passing through the points $(-1, -3), (4, 7)$

14. _____

15. Write the equation of a line in the form $Ax + By = C$ through the points $(3, 6)$, and $(2, 5)$.

15. _____

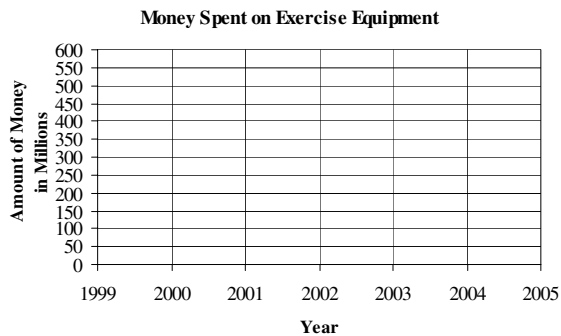
16. Write the equation of a line in the form $Ax + By = C$ through the point $(4, -6)$ and perpendicular to the line $y = -\frac{1}{2}x - 4$.

16. _____

17. The amount of money spent on exercise equipment has increased at a linear rate from \$50 million in 1999 to \$500 million in 2005.

- a) Plot the two data points on the coordinate plane at right, then draw a line connecting them.
- b) Find the slope of the line.
- c) Write the equation of the line in slope-intercept form.
- d) Determine the amount of money spent in 2004.

17. a)



b) _____

c) _____

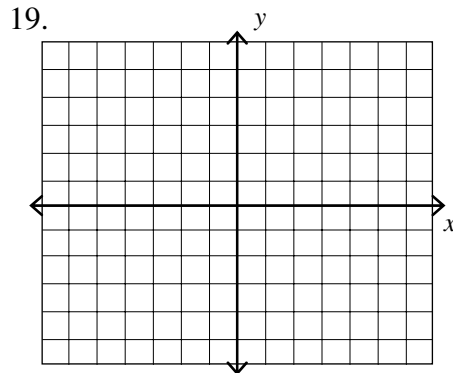
d) _____

18. Determine whether $(-2, -3)$ is a solution for the linear inequality $y \leq 5x + 7$.

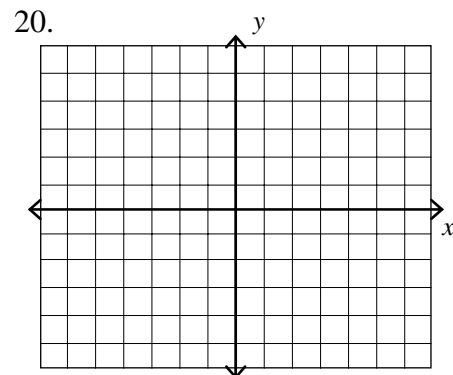
18. _____

For Exercises 19 and 20, graph the linear inequality.

19. $y < \frac{2}{3}x - 4$



20. $2x - 5y < -4$

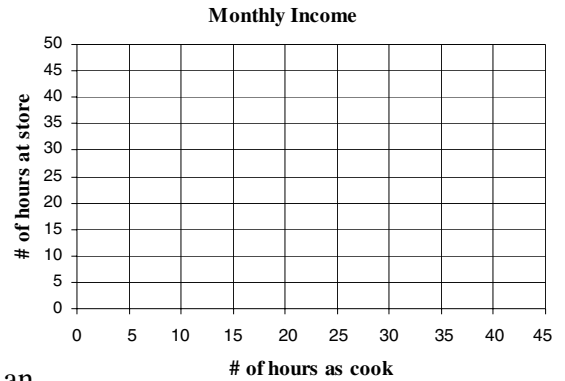


21. Mark works two part-time jobs. He receives \$10 per hour when working as a cook in a restaurant and \$8 per hour when working at a store. To pay all his monthly expenses, he needs to make at least \$360 per week.

- a) Let x represent the number of hours that he works at the restaurant and y represent the number of hours that he works at the store. Write an inequality in which his total income is at least \$360.
- b) Graph the inequality.
- c) Give a combination of hours that gives him an income of exactly \$360.
- d) Give a combination of hours that gives him an income of more than \$360.

21. a) _____

b)



c) _____

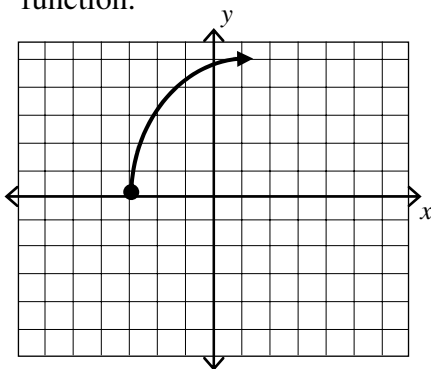
d) _____

22. The following relation shows grades on a recent algebra test. Is the relation a function?

| Student | Score |
|---------|-------|
| Amy | 89 |
| Beth | 91 |
| Charlie | 98 |
| Doug | 87 |
| Emily | 95 |
| Frank | 87 |

22. _____

23. Determine whether the graph is the graph of a function.



23. _____

24. Find the indicated value of the function:

$$f(x) = \frac{2x^2 + x}{x+1}.$$

- a) $f(1)$
- b) $f(0)$
- c) $f(-1)$

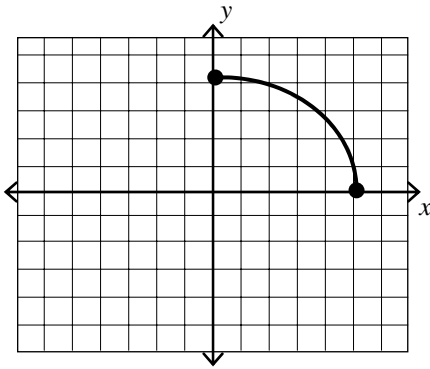
24. a) _____

b) _____

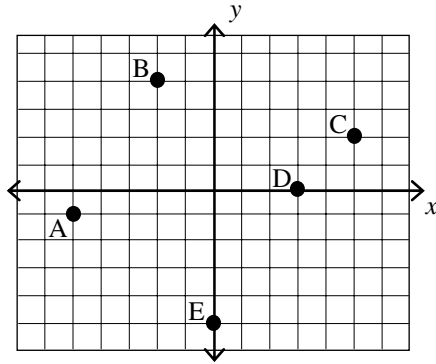
c) _____

25. Give the domain and range of the function.

25. _____



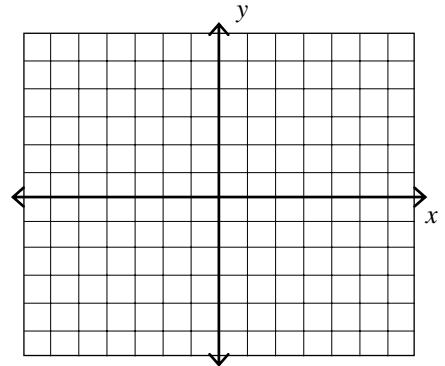
1. Determine the coordinates for each point.



1. _____

2. Plot and label the points indicated by the coordinate pairs. $(-3, -2)$, $(0, 3)$, $(-2, 4)$, $(-5, 0)$, $(5, 1)$.

2.



3. State the quadrant in which $(-1\frac{1}{3}, 3)$ is located.

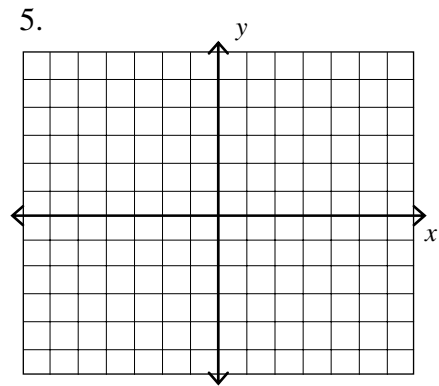
3. _____

4. Determine whether $(5, -4)$ is a solution for $y = -\frac{2}{5}x + 2$.

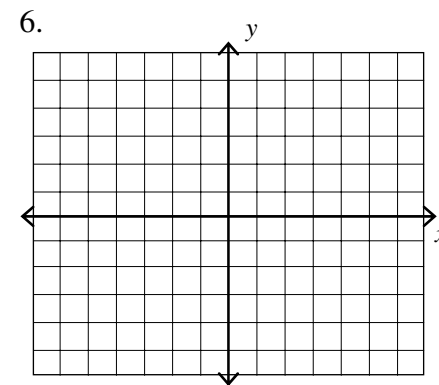
4. _____

For Exercises 5–8, find the coordinates for the x- and y-intercepts for each of the following, then graph.

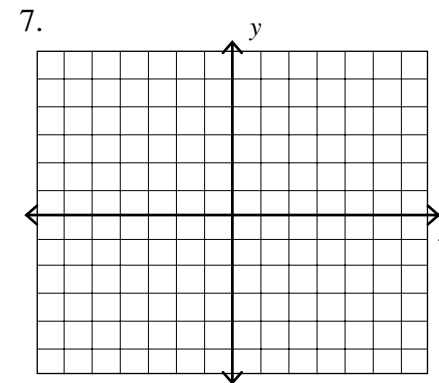
5. $3x + y = 6$



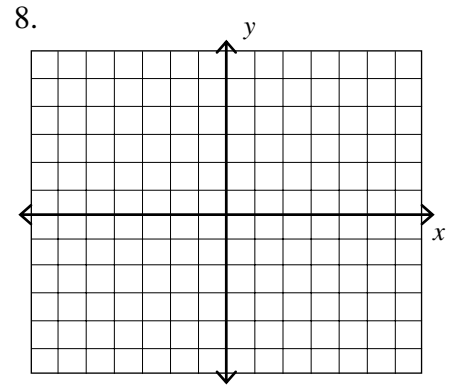
6. $2x - 4y = -8$



7. $y = \frac{1}{3}x$



8. $y = -\frac{3}{4}x + 2$



For Exercises 9 and 10, determine the slope and the coordinates of the y-intercept.

9. $y = \frac{3}{5}x - 7$

9. _____

10. $3x - 2y = 6$

10. _____

For Exercises 11 and 12, determine the slope of the line through the given points.

11. (4, 6), (2, 5)

11. _____

12. (2, -5), (-4, 5)

12. _____

For Exercises 13 and 14, write the equation of the line in slope-intercept form.

13. $m = \frac{4}{3}$; y-intercept (0, -2)

13. _____

14. Passing through the points (-2, -3), (0, -6)

14. _____

15. Write the equation of a line in the form $Ax + By = C$ through the points (-3, 4), and (3, 6).

15. _____

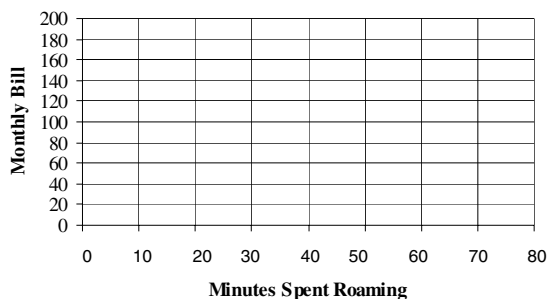
16. Write the equation of a line in the form $Ax + By = C$ through the point (4, -6) and parallel to the line $y = -\frac{1}{2}x - 4$.

16. _____

17. A monthly cell phone bill consists of a \$35 monthly fee plus \$0.70 per minute roaming charge.
- Draw a line graph.
 - Write the equation of the line in slope-intercept form.
 - Find the slope of the line.
 - Determine the monthly bill if there was roaming charges for 40 minutes.

17. a)

Monthly Cell Phone Bill



b) _____

c) _____

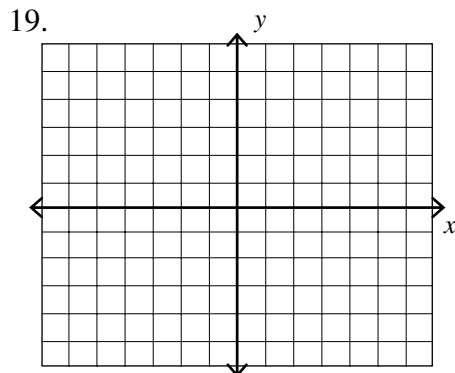
d) _____

18. Determine whether $(-1, -2)$ is a solution for the linear inequality $y \leq 3x + 5$.

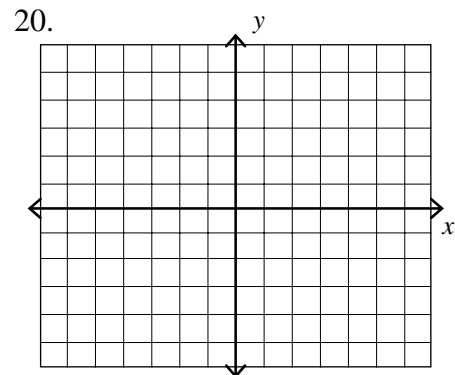
18. _____

For Exercises 19 and 20, graph the linear inequality.

19. $x - 2y > -8$



20. $2x - 4y < -8$

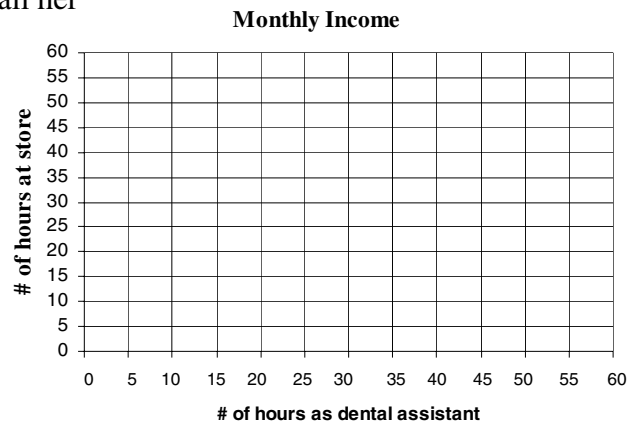


21. Mary works two part-time jobs. She receives \$12 per hour when working as a dental assistant and \$8 per hour when working at a store. To pay all her monthly expenses, she needs to make at least \$360 per week.

- a) Let x represent the number of hours that she works as a dental assistant and y represent the number of hours that she works at the store. Write an inequality in which her total income is at least \$360.
- b) Graph the inequality.
- c) Give a combination of hours that gives her an income of exactly \$360.
- d) Give a combination of hours that gives her an income of more than \$360.

21. a) _____

b)



c) _____

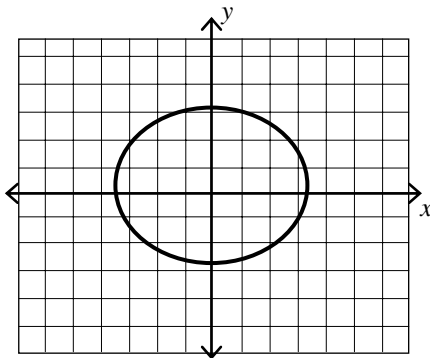
d) _____

22. The following relation shows the ages of students in an algebra class at a community college. Is the relation a function?

| Student | Age |
|---------|-----|
| Amy | 19 |
| Beth | 21 |
| Charlie | 18 |
| Doug | 20 |
| Emily | 25 |
| Frank | 22 |

22. _____

23. Determine whether the graph is the graph of a function.



23. _____

24. Find the indicated value of the function:

$$f(x) = \frac{4x^2 + x}{x + 4}.$$

- a) $f(2)$
- b) $f(0)$
- c) $f(-2)$

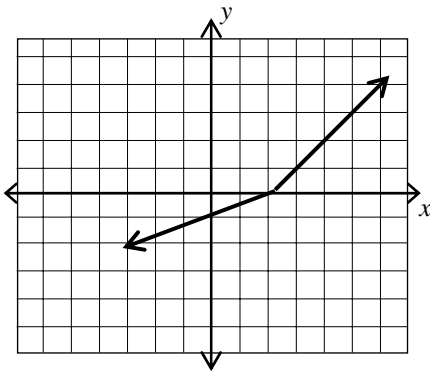
24. a) _____

b) _____

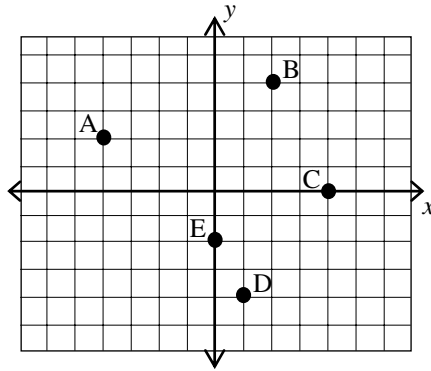
c) _____

25. Give the domain and range of the function.

25. _____

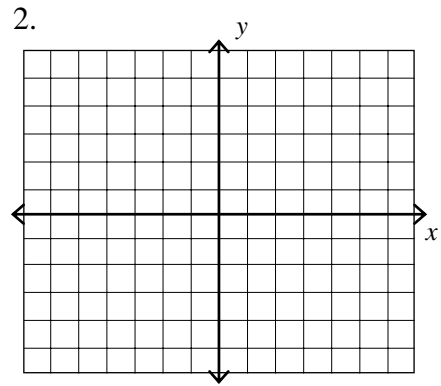


1. Determine the coordinates for each point.



1. _____

2. Plot and label the points indicated by the coordinate pairs. $(1, -2)$, $(0, -3)$, $(5, 4)$, $(-3, 2)$, $(4, 0)$.



2.

3. State the quadrant in which $(-2.7, -\frac{4}{3})$ is located.

3. _____

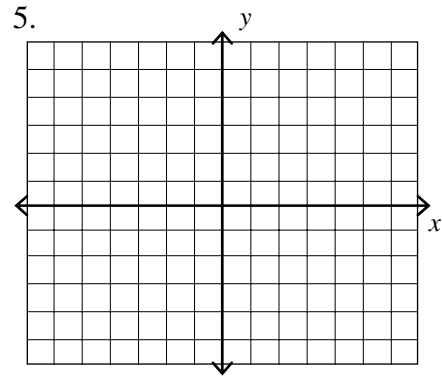
4. Determine whether $(-8, -2)$ is a solution for

4. _____

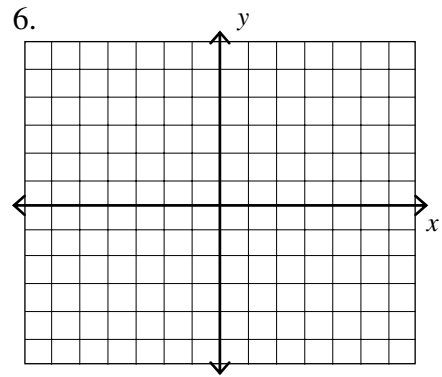
$$y = \frac{3}{4}x + 4.$$

For Exercises 5–8, find the coordinates for the x- and y-intercepts for each of the following, then graph.

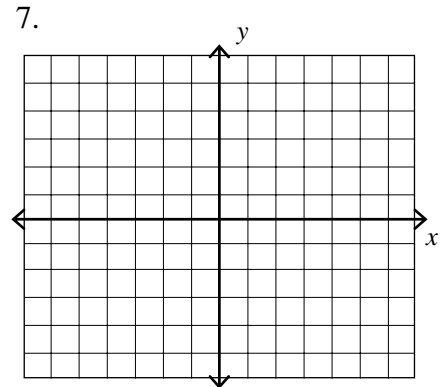
5. $4x - y = 3$



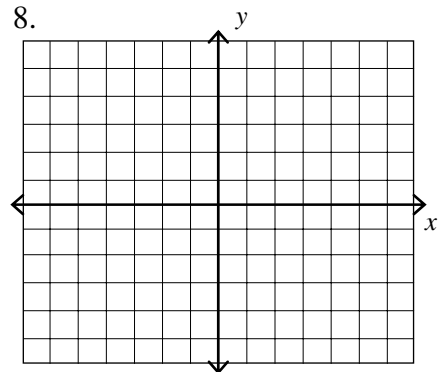
6. $3x - 2y = 6$



7. $y = \frac{4}{3}x - 2$



8. $y = -\frac{3}{5}x$



For Exercises 9 and 10, determine the slope and the coordinates of the y-intercept.

9. $y = -\frac{3}{5}x - 7$

9. _____

10. $-3x + 2y = -8$

10. _____

For Exercises 11 and 12, determine the slope of the line through the given points.

11. (5, 6), (4, 2)

11. _____

12. (5, -1), (-3, -2)

12. _____

For Exercises 13 and 14, write the equation of the line in slope-intercept form.

13. $m = \frac{4}{3}$; y-intercept (0, -5)

13. _____

14. Passing through the points (-2, -4), and (6, -6).

14. _____

15. Write the equation of a line in the form $Ax + By = C$ through the points (-3, -5), and (-1, -6).

15. _____

16. Write the equation of a line in the form $Ax + By = C$ through the point (-3, -5) and parallel to the line $y = 3x + 4$.

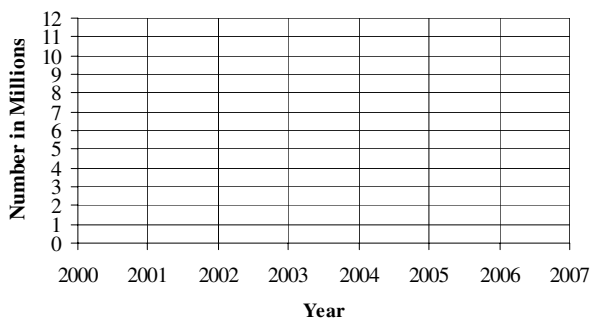
16. _____

17. From 2000 to 2005 the number of people attending a theme park increased from 1.2 million to 8.7 million per year.

- a) Plot the two data points on the coordinate plane, then draw a line connecting them.
- b) Write the equation of the line in slope-intercept form.
- c) Find the slope of the line.
- d) If the trend continues, how many people will attend the theme park in 2007?

17. a)

Attendance at a Theme Park



b) _____

c) _____

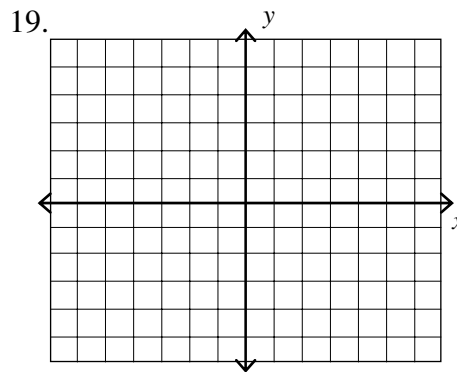
d) _____

18. Determine whether $(-5, 4)$ is a solution for the linear inequality $y \leq -\frac{2}{5}x + 2$.

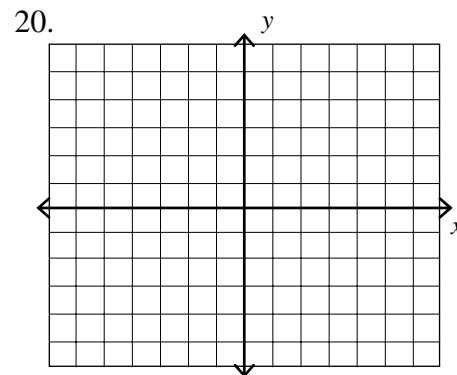
18. _____

For Exercises 19 and 20, graph the inequality.

19. $y < \frac{2}{3}x - 4$



20. $2x - 5y \leq -4$



21. Nancy works two part-time jobs. She receives \$11 per hour when working as a nursing assistant and \$8 per hour when working at a music store. To pay all her monthly expenses, she needs to make at least \$440 per week.

- a) Let x represent the number of hours that she works as a dental assistant and y represent the number of hours that she works at the store. Write an inequality in which her total income is at least \$440.
- b) Graph the inequality.
- c) Give a combination of hours that gives her an income of exactly \$440.
- d) Give a combination of hours that gives her an income of more than \$440.

21. a) _____

b) _____

Monthly Income

c) _____

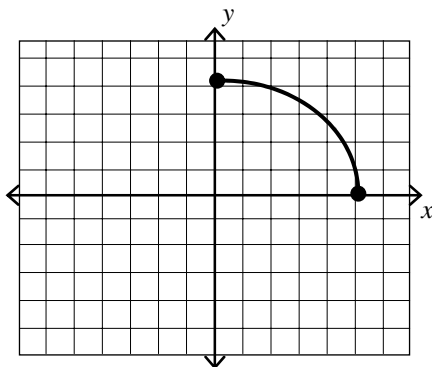
d) _____

22. The following relation shows grades on a recent algebra test. Is the relation a function?

| Student | Score |
|---------|-------|
| Jack | 89 |
| Kelli | 91 |
| Mike | 98 |
| Nancy | 83 |
| Oprah | 95 |
| Patty | 87 |

22. _____

23. Determine whether the graph is the graph of a function.



23. _____

24. Find the indicated value of the function:

$$f(x) = \frac{3x^2 - 2x}{2x + 1}.$$

a) $f(1)$

b) $f(0)$

c) $f(-1)$

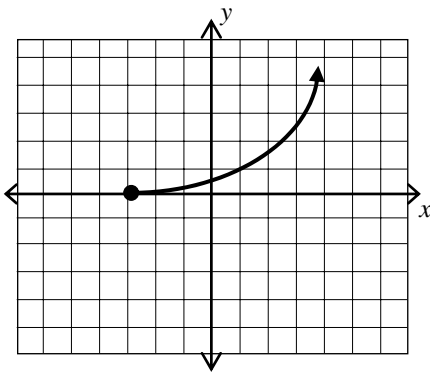
25. Give the domain and range of the function.

24. a) _____

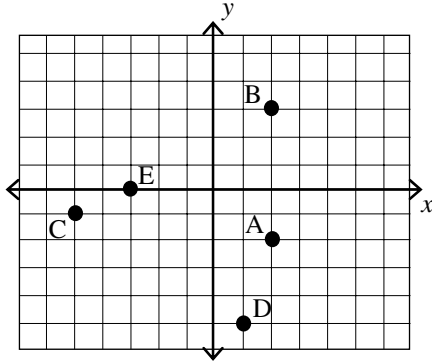
b) _____

c) _____

25. _____

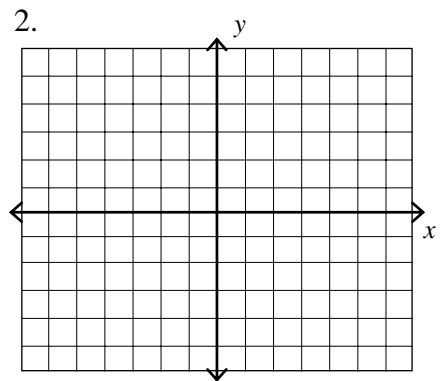


1. Determine the coordinates for each point.



1. _____

2. Plot and label the points indicated by the coordinate pairs. $(1.5, -2.3)$, $(0, -3.7)$, $(5.2, 4.8)$, $(-0.3, 2.5)$, $(-4.3, 0)$.



2.

3. State the quadrant in which $(-\frac{4}{3}, 0)$ is located.

3. _____

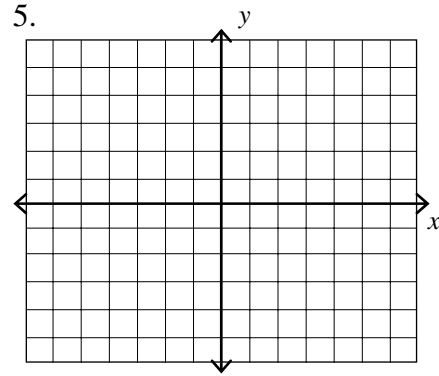
4. Determine whether $(-\frac{4}{3}, 6)$ is a solution for

4. _____

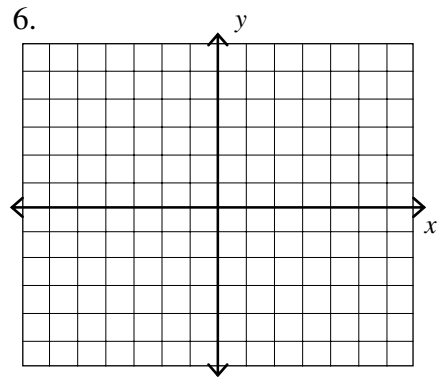
$$y = -\frac{3}{4}x + 5.$$

For Exercises 5–8, find the coordinates for the x- and y-intercepts for each of the following, then graph.

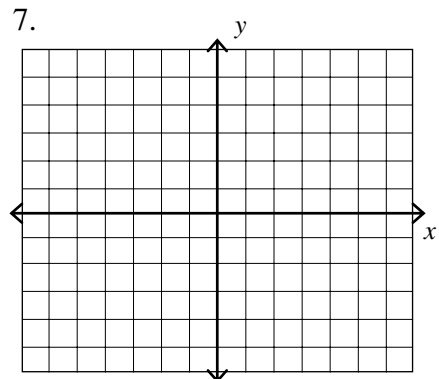
5. $3x - y = 1$



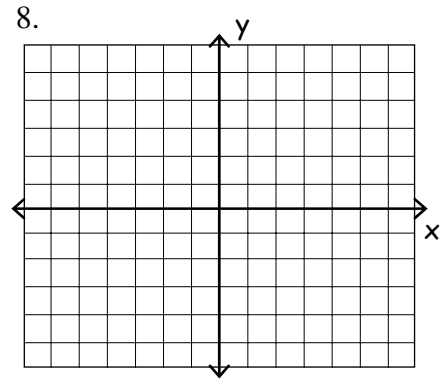
6. $\frac{1}{2}x - \frac{2}{3}y = 1$



7. $-2x = -3y - 6$



8. $x = -4$



For Exercises 9 and 10, determine the slope and the coordinates of the y-intercept.

9. $y = \frac{4}{7} - \frac{3}{4}x$

9. _____

10. $-4x - 3y = -6$

10. _____

For Exercises 11 and 12, determine the slope of the line through the given points.

11. $(-3, 2), (5, -4)$

11. _____

12. $(-4, 9), (-3, 9)$

12. _____

For Exercises 13 and 14, write the equation of the line in slope-intercept form.

13. $m = -\frac{2}{3}$; y-intercept $(0, -5)$

13. _____

14. Passing through the points $(-1, 5), (-3, -2)$

14. _____

15. Write the equation of a line in the form $Ax + By = C$ through the points $(2, 1)$, and $(-4, -2)$.

15. _____

16. Write the equation of a line in the form $Ax + By = C$ through the point $(-5, -3)$ and perpendicular to the line $y = -\frac{2}{3}x + 6$.

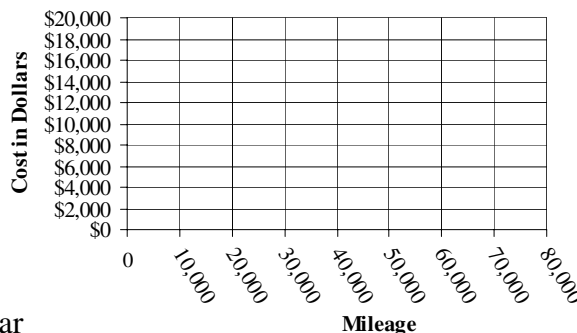
16. _____

17. The cost to own and operate a full-size truck driven 20,000 miles is \$8000. The cost for a truck driven 40,000 miles is \$16,000.

- a) Plot the two data points on the coordinate plane at right, then draw a line connecting them.
- b) Find the slope of the line.
- c) Write the equation of the line in slope-intercept form.
- d) Determine the cost to own and operate a car driven 25,000 miles.

17. a)

Truck Operation Cost



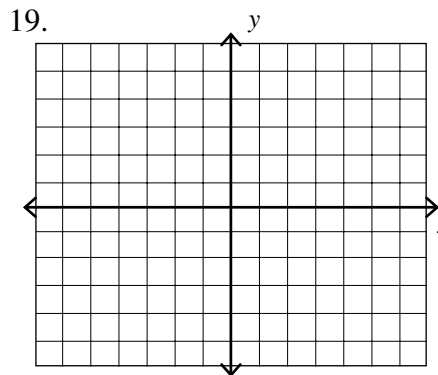
- b) _____
- c) _____
- d) _____

18. Determine whether $(-4, 5\frac{1}{2})$ is a solution for the linear inequality $y \leq -\frac{1}{2}x + 4$.

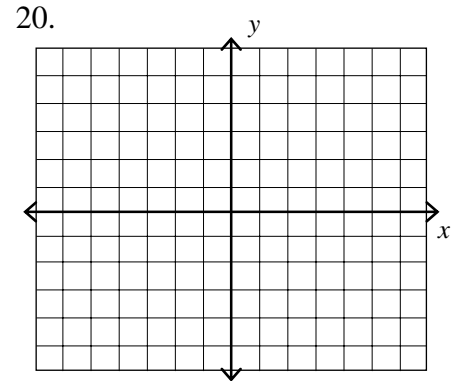
18. _____

For Exercises 19 and 20, graph the inequality.

19. $y < \frac{3}{2}x - 4$



20. $4x + 2y \leq -4$

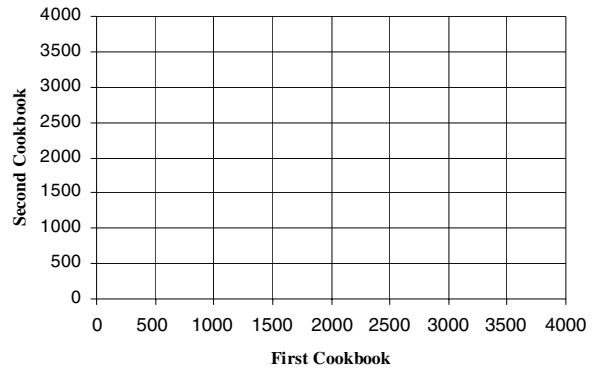


21. Pepe is coordinating a fund-raiser that will sell two different cookbooks. One cookbook sells for \$8 and the other for \$10. The goal is to raise at least \$24,000.

- a) Let x represent the first cookbook and y the second cookbook. Write an inequality in which her total sales is at least \$24,000.
- b) Graph the inequality.
- c) Give a combination of cookbooks that gives her total sales of exactly \$24,000.
- d) Give a combination of cookbooks that gives her total sales of more than \$30,000.

21. a) _____

b) **Fund-Raiser**



c) _____

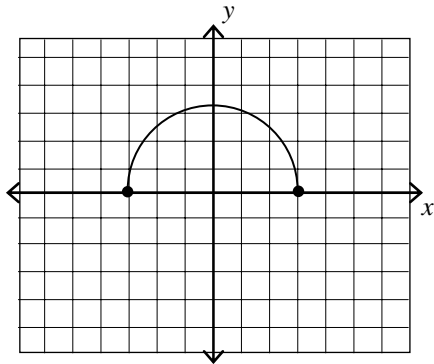
d) _____

22. The following relation shows the average high temperature for the first six weeks of summer. Is the relation a function?

22. _____

| Week | Average High |
|------|--------------|
| 1 | 89 |
| 2 | 91 |
| 3 | 98 |
| 4 | 92 |
| 5 | 95 |
| 6 | 87 |

23. Determine whether the graph is the graph of a function.



23. _____

24. Find the indicated value of the function:

$$f(x) = \sqrt{x+2}$$

a) $f(-2)$

b) $f(2)$

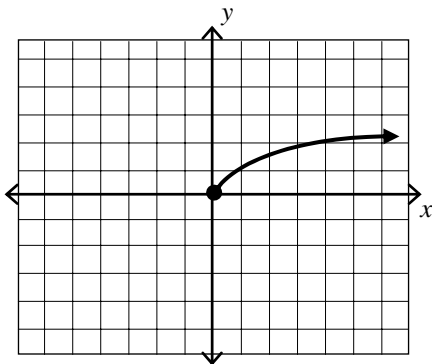
c) $f(5)$

24. a) _____

b) _____

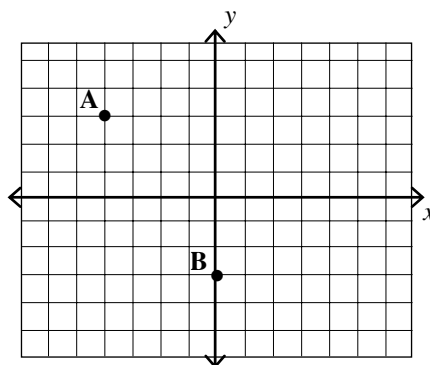
c) _____

25. Give the domain and range of the function.



25. _____

1. The coordinates of point B are:



1. _____

- (a) $(0, -3)$ (b) $(-3, 0)$ (c) $(1, -3)$ (d) $(-3, 1)$

2. The coordinates of point A are:

2. _____

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

3. State the quadrant in which $\left(3\frac{7}{8}, -2\frac{1}{4}\right)$ is located.

3. _____

- (a) Quadrant I (b) Quadrant II (c) Quadrant III (d) Quadrant IV

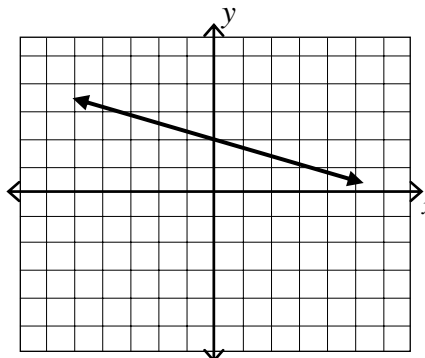
4. Which ordered pair is a solution of $4x + 5y = 9$

4. _____

- (a) $\left(\frac{4}{9}, 0\right)$ (b) $\left(0, -\frac{9}{5}\right)$ (c) $\left(2, \frac{1}{5}\right)$ (d) $\left(\frac{1}{5}, 2\right)$

5. Which of the following is graphed?

5. _____



- (a) $y = \frac{1}{3}x + 2$ (b) $y = -\frac{1}{3}x + 2$ (c) $y = -3x + 2$ (d) $y = -3x - 2$

6. Find the coordinates for the x - and y -intercepts for $5x - 2y = 10$ 6. _____

(a) $(5, 0)$ and $(0, -2)$ (c) $(2, 0)$ and $(0, -5)$

(b) $(2, 0)$ and $(0, 5)$ (d) $(5, 0)$ and $(0, 2)$

7. Find the coordinates for the x - and y -intercepts for $3x - 2y = -12$ 7. _____

(a) $(0, 6)$ and $(-4, 0)$ (c) $(0, 6)$ and $(4, 0)$

(b) $(0, -6)$ and $(4, 0)$ (d) $(0, -6)$ and $(-4, 0)$

8. The coordinates for the x - and y -intercepts for $y = |x| - 5$ are: 8. _____

(a) $(0, -5)$ (c) $(-5, 0)$ and $(5, 0)$

(b) $(0, -5)$, $(-5, 0)$ and $(5, 0)$ (d) $(0, -5)$ and $(5, 0)$

For Exercises 9 and 10, determine the slope and the coordinates of the y -intercept.

9. $3x + 4y = -5$ 9. _____

(a) $m = -\frac{4}{3}; (0, \frac{5}{4})$ (c) $m = -\frac{3}{4}; (0, -\frac{5}{4})$

(b) $m = -\frac{3}{4}; (0, -5)$ (d) $m = \frac{3}{4}; (0, \frac{5}{4})$

10. $3x - y = 2$ 10. _____

(a) $m = -3; (0, 2)$ (c) $m = 3; (0, -2)$

(b) $m = -3; (0, -2)$ (d) $m = 3; (0, 2)$

For Exercises 11 and 12, determine the slope of the line through the given points.

11. $(6, 5), (1, 5)$ 11. _____

(a) undefined (b) 0 (c) $\frac{10}{7}$ (d) $\frac{1}{2}$

12. $(-3, -6), (-3, 2)$ 12. _____

- (a) undefined (b) 0 (c)
- $-\frac{1}{6}$
- (d)
- $\frac{2}{3}$

For Exercises 13–15, write the equation of the line in slope-intercept form.

13. Write the equation of the line that contains $(2, -1)$ and has a slope of 3. 13. _____

- (a)
- $y = 3x + 7$
- (b)
- $y = -3x + 7$
- (c)
- $y = 3x - 7$
- (d)
- $y = -3x - 7$

14. Write the equation of the line that contains $(-2, 1)$ and has $m = -2$. 14. _____

- (a)
- $y = -\frac{1}{2}x + 1$
- (b)
- $y = -\frac{1}{2}x + 1$
- (c)
- $2x + y = 1$
- (d)
- $2x + y = -3$

15. Write the equation of a line that contains $(4, -2)$ and $(3, 3)$. 15. _____

- (a)
- $y = -5x + 18$
- (b)
- $y = -5x - 18$

- (c)
- $y = \frac{1}{5}x - 18$
- (d)
- $y = -\frac{1}{5}x - 18$

16. Determine the slope of a line perpendicular to the line given by the equation $2x - y + 7 = 0$. 16. _____

- (a)
- $-\frac{2}{7}$
- (b)
- $-\frac{1}{2}$
- (c) 2 (d)
- $\frac{7}{2}$

17. Earl earns a salary of \$250 per week and an extra \$300 for each car sold. Write an equation relating the number of cars sold to Earl's weekly salary. 17. _____

- (a)
- $y = 300x + 250$
- (b)
- $y = -300x + 250$
-
- (c)
- $y = 300x - 250$
- (d)
- $y = -300x - 250$

18. Which ordered pair(s) in the list are solutions of $y \leq \frac{1}{2}x + 3$? 18. _____

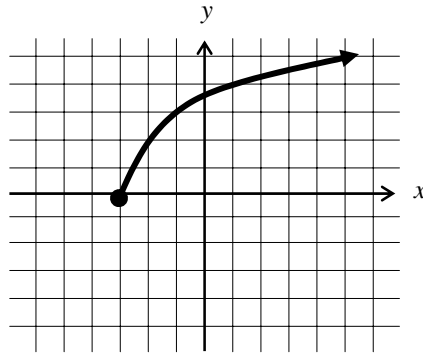
- (i)
- $(-8, -10)$
- (ii)
- $(-2, 2)$
- (iii)
- $(14, 4)$

- (a) (i) and (ii) (b) (i) and (iii) (c) (ii) and (iii) (d) (i), (ii), and (iii)

19. The points on the graph of $5x + 6y \geq 9$ lie 19. _____
- (a) above the line $y = -\frac{5}{6}x + \frac{3}{2}$ (c) on or above the line $y = -\frac{5}{6}x + \frac{3}{2}$
- (b) below the line $y = -\frac{5}{6}x + \frac{3}{2}$ (d) on or below the line $y = -\frac{5}{6}x + \frac{3}{2}$
20. The points on the graph of $2x - 3y < 6$ lie 20. _____
- (a) above the line $y = \frac{2}{3}x - 2$ (c) on or above the line $y = \frac{2}{3}x - 2$
- (b) below the line $y = \frac{2}{3}x - 2$ (d) on or below the line $y = \frac{2}{3}x - 2$
21. The graph of $y < -4$ is bounded by 21. _____
- (a) a solid horizontal line (b) a dashed horizontal line
- (c) a solid vertical line (d) a dashed vertical line
22. Arby earns \$700 per month plus an 8% commission on the amount of sales. His goal is to earn a minimum of \$3100 per month. Find the minimum sales that will enable him to earn \$3100 per month. 22. _____
- (a) \$25,000 (b) \$30,000 (c) \$31,000 (d) \$32,000
23. Let $A = \{0, 1, 2, 3\}$ and $B = \{-4, -2, 0, 4\}$. Which set of ordered pairs represents a function from A to B? 23. _____
- (a) (1, 4), (2, 2), (3, 4), (3, 0) (c) (0, -4), (1, -2), (2, 0), (3, 4)
- (b) (0, 0), (0, 2), (1, -2), (1, -4) (d) (3, -2), (1, -4), (2, 2), (3, -2)
24. Find $f(-3)$ for the function $f(x) = 2x^2 + 3$. 24. _____
- (a) -15 (b) -3 (c) 21 (d) 39

25. The domain and range of the graph shown is:

25. _____



- (a) D: $\{x \mid x > -3\}$ R: $\{y \mid y \geq 0\}$ (c) D: $\{x \mid x \geq 3\}$ R: $\{y \mid y \geq 0\}$
(b) D: $\{x \mid x \geq -3\}$ R: $\{y \mid y \geq 0\}$ (d) None of these

