

**Module 8 Working with Algebra****Section 8.1 Evaluating Expressions with Variables****Practice Problems 8.1**For Problem 1-10, evaluate the expression given  $x = -3$  and  $y = 5$ .

1.  $(x + y)^3$

2.  $3xy^2 - xy + 7$

3.  $4x^2 - y^2$

4.  $x^3 + x^2 + x - 4$

5.  $3x^3 - y^2$

6.  $\frac{(2x)3(4)}{4}$

7.  $\frac{x-y}{2} + \frac{x+y}{2}$

8.  $6x + 7y$

9.  $2xy + 10xy$

10.  $\frac{7xy}{x+3+y}$

For Problem 11-15, solve the word problem given.

11. Write an expression for the amount of money one has left from a \$20 bill after purchasing three DVDs at a price of  $x$ .

12. Is  $x^2 + y^2$  the same as  $(x + y)^2$  when  $x = 1$  and  $y = 0$ ?

13. Is  $x^2 + y^2$  the same as  $(x + y)^2$  when  $x = 1$  and  $y = 2$ ?

14. Is  $x^2 + y^2$  sometimes, always, or never the same as  $(x + y)^2$ ?

15. The snack bar at school has added ice cream to its menu. A dish of ice cream costs \$0.75, and then each topping or fruit is an additional 0.50 cents. Make a table of the costs for one through four toppings. If  $t =$  toppings, what would a dish of ice cream with eight toppings cost when  $t = 8$ ? Twelve toppings when  $t = 12$ ?

Section 8.2 Writing Expressions for Word PhrasesPractice Problems 8.2

For Problem 1-9, write the verbal expression given as an algebraic expression.

1. 20 more than a number
2. 8 less than a number
3. 8 times a number
4. The quotient of 5 and a number
5. 6 more than twice a number  $x$
6. 12 less than the quotient of 6 and a number
7. The product of 4 and the sum of a number and 6
8. The difference between 14 and a number
9. 27 divided into  $n$  parts

For Problem 10, solve the multiple-choice problem.

10. Which of the phrases works with the commutative property?
  - a) Seven more than 13
  - b) Seven less than 13

For Problem 11-16, write the algebraic expression given as a verbal expression.

11.  $x + 15$
12.  $\frac{z}{14}$

13.  $\frac{3}{x} - 5$

14.  $9x - 4$

15.  $-6y$

16.  $2(n - 4)$

For Problem 17 and 18, follow the instructions given to solve the problem.

17. Highlight the operation(s) and then write an algebraic expression for the phrase given.

a) 33 less than a number

b) 16 less than a number

c) A number less than 4

d)  $m$  less than  $-15$

18. Highlight the operation(s) and then write an algebraic expression for the phrase given.

a) 11 more than 4 times a number

b) The product of 10 and the sum of 7 and a number

c) 5 less than the product of a number and 2

d) The quotient of 3 and the sum of 10 and a number

For Problem 19 and 20, use the given table to solve the problem.

Number of Hours	Cost of Jet Ski Rental
1	$(1 \times 12) + 50$
2	$(2 \times 12) + 50$
3	$(3 \times 12) + 50$
4	$(4 \times 12) + 50$
$h$	

19. The cost of renting a jet ski on the St. George Island is \$12 an hour plus a \$50 deposit. Josh and Will are going to rent jet skis, but need to know what it would cost. Complete the table by writing an expression for the cost to rent a jet ski for  $h$  hours.

20. If Josh and Will have \$100.00, do they have enough money to rent jet skis for 4 hours?

For Problem 21 and 22, use the given table to solve the problem.

Number of Bikes	Earnings (Salary plus Bike)
5	$(5 \times 50) + 150$
10	$(10 \times 50) + 150$
15	$(15 \times 50) + 150$
20	$(20 \times 50) + 150$
$b$	

21. Lauren works part-time at Bikes-R-Us and gets a salary of \$150 a week plus \$50 for every bike she sells. Complete the table by writing an expression for Lauren's earnings given she sell  $b$  bikes in one week.

22. If Lauren sells 4 bikes in one week, how much money does she earn?

Section 8.3 Writing Variable Equations from WordsPractice Problems 8.3

For Problem 1-3, write an equation for the phrase given but do not solve the problem.

1. Four more than the product of 4 and a number is 14
2. Ten divided by the sum of a number and 3 is 11
3. The sum of two numbers is 50; one number is  $x$  and the other number is 5 times  $x$

For Problem 4-10, solve the word problem given.

4. The perimeter of a rectangle is 25. If the length is  $x$  and the width is  $x - 1$ , write an equation to find the perimeter of the rectangle.
5. If the base of a triangle is  $y$  and the height is 2 times the base, find the area of the triangle.
6. The length of a room is 16 times its width. The room is 140 feet long. Write an equation to find the width of the room.
7. Beth runs 80 minutes every day. How many days ( $d$ ) does she run to get to 1,543 minutes?
8. Leann reads for 8 weeks during her summer reading program. The book she is reading is 1,942 pages long. How many pages must she read each week to complete the book by then end of the summer reading program?

9. Trevor travels at 55 MPH to get to Cleveland, Ohio, to see Shamu the whale. It is a distance of about 226 miles from where he starts. How many hours will Trevor travel if he stays at a constant 55 MPH?

10. Shamu performs three shows daily at the water show for approximately 12,978 people. How many people attend each performance?

For Problem 11-15, use the given information to solve the problem.

Jenna makes 12 smoothies in 30 minutes.

11. How many smoothies can Jenna make in 10 minutes?
  
  
  
  
  
  
  
  
  
  
12. How many smoothies can Jenna make in 1 hour?
  
  
  
  
  
  
  
  
  
  
13. How many smoothies can Jenna make in 5 minutes?
  
  
  
  
  
  
  
  
  
  
14. What is Jenna's unit rate of smoothies made per minute?
  
  
  
  
  
  
  
  
  
  
15. What is Jenna's unit rate of smoothies made per hour?

Section 8.4 Variables, Coefficients, Constants, and TermsPractice Problems 8.4

For Problem 1-4, identify the number of terms in the expression given.

1.  $3ab - 2b^2 + a^2$

2.  $-6m^2 + 4n - 3n^2$

3.  $-5xy + 2x - 3y + 2x^2 - 4y^2$

4.  $2xy + 11$

For Problem 5-8, underline each variable, circle each coefficient, and put a box around each constant in the expression given.

5.  $x - 33y$

6.  $4x + 3y - 4$

7.  $-2z + 3y - x$

8.  $2 + 9p$

For Problem 9-16, underline the like terms, then combine them and simplify the expression given.

9.  $3y - 7x + 4y$

10.  $7c - 3 + 2x - 8$

11.  $4x + 3y + 1$

12.  $5x^2 - 4x^2 + 3x - 2x^2 + 5x - 8x^2 - 6x^2 - 9x$

13.  $50b + 22a - 11a + 4b$

14.  $3x + 11y - 2x + 3y - x^2 + 4y^2$

15.  $2a^2 - 3b^2 + a - b$

16.  $2xy - 4x + 7y$



For Problem 17-20, solve the word problem given.

17. Can you simplify  $13xy - 12xy$ ? Explain why or why not.
18. Can you simplify  $2x^2 + 2y^2$ ? Explain why or why not.
19. Can you simplify  $b - b^2$ ? Explain why or why not.
20. Fill in the blank: Because the commutative property holds true for multiplication,  $ab$  is the same as \_\_\_\_\_.

Section 8.5 Open Sentences

Practice Problems 8.5

For Problem 1-10, tell whether the statement given is true, false, or open.

1.  $10 + 6 = 3 + 8$

2.  $3x + 4 = 17$

3.  $7 \cdot 8 = 56$

4.  $2x + 7 = 7x + 4$

5.  $3x - 9 = 14$

6.  $\frac{7}{0} = 7$

7.  $6 \cdot 3 = 2 \cdot 9$

8.  $2x + 3 = 4x$

9.  $\frac{10}{20} = 0.5$

10.  $(3)(2)(1) = \frac{12}{2}$

For Problem 11-14, tell which values of  $x$  in the solution set  $\{-4, -3, -2, -1, 0, 1, 2, 3, 4\}$  make the open sentence given true and complete the table given to solve the problem.

11.  $5x - 3 = 17$

12.  $3x - 4 = -7$

$x$	$5x - 3$	$= 17$	True or False

$x$	$3x - 4$	$= -7$	True or False

13.  $6x - 3 = 15$

$x$	$6x - 3$	$= 15$	True or False

14.  $3 = -2x + 5$

$x$	$-2x + 5$	$= 3$	True or False

For Problem 15-18, tell which values of the set  $x \in \{-2, -1, 0, 1\}$  are solutions to the equation given. (There may be more than one solution.)

15.  $x^2 = 1$

16.  $x^3 = -1$

17.  $x^2 = 4$

18.  $x^2 - 5 = -4$

For Problem 19 and 20, solve the multiple-choice problem given.

19. Which equation has the solution  $x = -6$ ?

a)  $4x + 12 = 12$

b)  $-3x + 5 = 23$

c)  $\frac{3(x+2)}{4} = 6$

d)  $4x + 4x = 0$

20. Which equations have the solution  $x = 5$ ? There may be more than one answer.

a)  $3x - 7 = 8$

b)  $-3x + 5 = -4$

c)  $5x + 6 = 32$

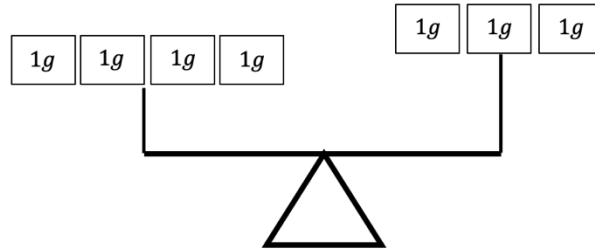
d)  $2x + 5 = 3x$

Section 8.6 Balanced Equations

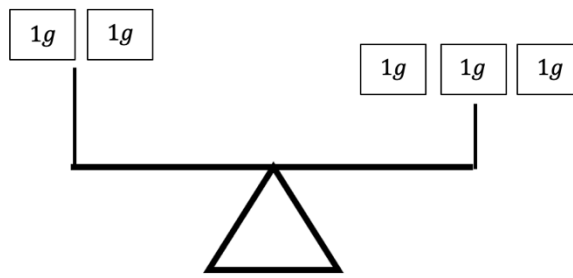
Practice Problems 8.6

For Problem 1-10, use the information and/or scale given to solve the problem.

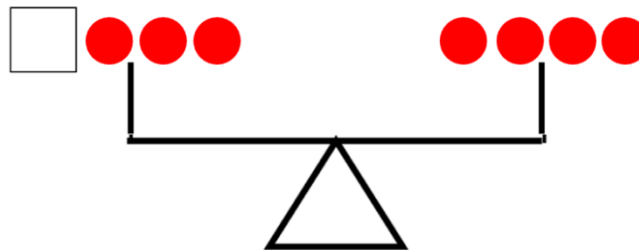
1. The balance scale below was balanced, but now it is not. Something has been removed. What has been removed and from which side of the scale has it been removed from?



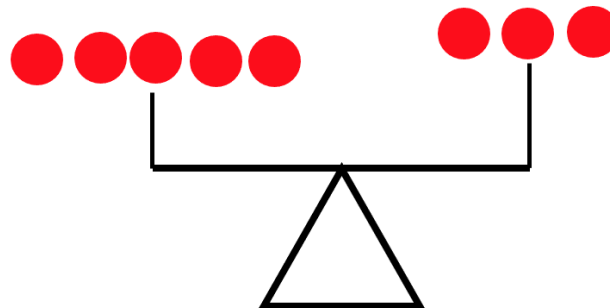
2. The balance scale below was balanced, but now it is not. Something has been added to it. What has been added and to which side of the scale has it been added to?



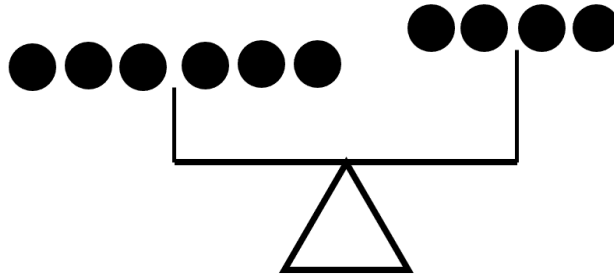
3. The scale below is balanced. What must be in the box?



4. The scale below is not balanced. Name at least two ways to balance it.



5. On the scale below, if you add two black chips to the right side, how many black chips must you add to the left side to make it balanced?



6. What must be in the box to make the equation below balanced?








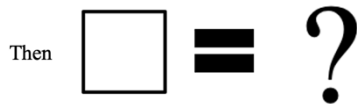
7. Write an equation to represent what you see on the balance scale below.



8. Use boxes and chips to represent the equation below.

$$2x + 5 = \frac{1}{4}$$

9. If   =   



10. If  =  

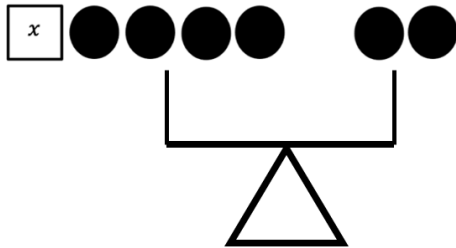
Then what must be in the box?

Section 8.7 Undoing Addition

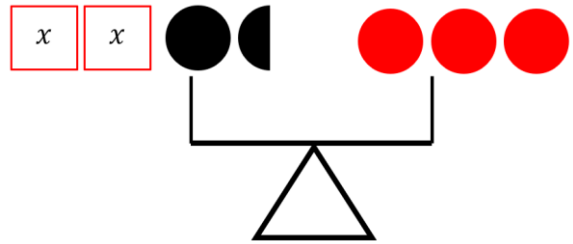
Practice Problems 8.7

For Problem 1-6, write an equation for the given scale. Do not solve the equation.

1.



2.



3.



4.



5.



6.



For Problem 7-15, solve for  $x$  in the equation algebraically and check your solution.

7.  $x + 7 = 12$

8.  $x + 2.2 = 9.8$

9.  $x + \frac{1}{7} = \frac{1}{2}$

10.  $x + 6 = 6$

11.  $-3 = x + 4$

12.  $0 = x + 9$

13.  $6.5 = 2.1 + x$

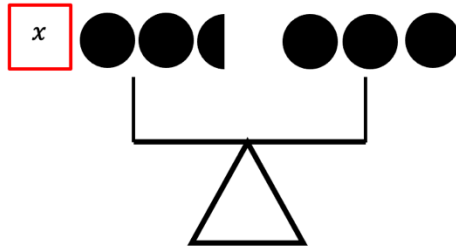
14.  $-x + 7 = 17$

15.  $-x + 15 = 10$

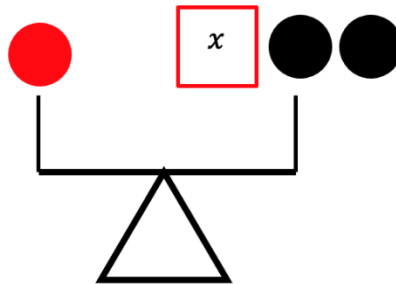
Section 8.8 Undoing SubtractionPractice Problems 8.8

For Problem 1-6, use the information given to solve the problem.

1. How many chips would you remove from each side of the given scale to find out what is in the box? What is in the box?



2. Kevin adds one black chip to the left side and one black chip to the right side of the given scale. What can Chrisie do to balance the scale?



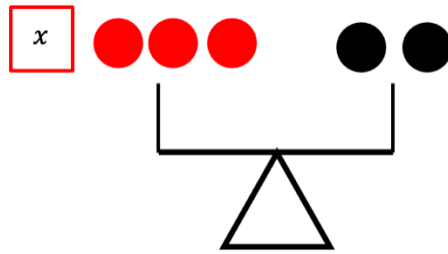
3. Problem 2 will still work but it seems Kevin added an extra step. What chips could Kevin had added to both sides of the scale right away to get the box alone on the right side of the scale?

4. Use algebra to set up an equation to represent the scales in Problem 2 and solve for  $x$  using algebra.

5. Check your solution from the equation in Problem 4. Does it work?



6. Use algebra to set up an equation for the balance scale and solve for the variable. Check your solution.



For Problem 7-15, solve for the variable in the equation given and check your solution.

7.  $m - 14 = 28$

8.  $2.2 + n = 6.91$

9.  $40 = p - 15$

10.  $y - 11 = 31$

11.  $m - 13 = -15$

12.  $x - 44 = 10$

13.  $-x - 2 = 12$

14.  $-x - 1 = -13$

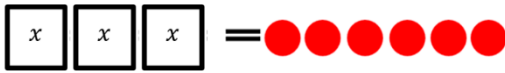
15.  $-x - 8 = -5$

Section 8.9 Undoing Multiplication

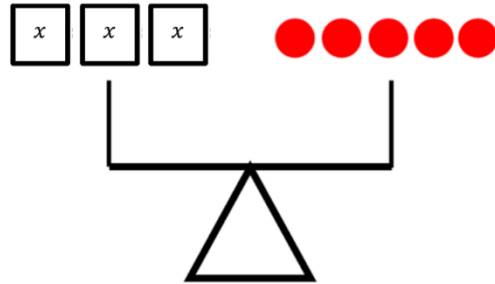
Practice Problems 8.9

For Problem 1-4, tell how many chips are in each box ( $x$ ) to keep the equation/scale balanced.

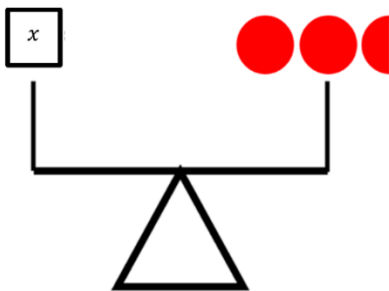
1.



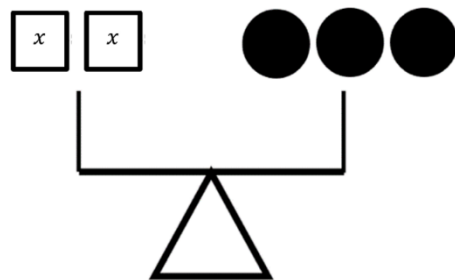
2.



3.



4.



For Problem 5-8, set up an algebraic equation for the equation/scale in Problem 1-4 and solve it, then check your solution with Problem 1-4.

5. Set up an equation for Problem 1.

6. Set up an equation for Problem 2.

7. Set up an equation for Problem 3.

8. Set up an equation for Problem 4.

For Problem 9-15, solve for the variable in the equation given and check your solution.

9.  $6x = 35$

10.  $5x = 22$

11.  $10p = -100$

12.  $-14t = -28$

13.  $\frac{1}{3} = 3x$

14.  $\frac{4}{9}x = 2$

15.  $0.2x = 30$

Section 8.10 Undoing DivisionPractice Problems 8.10

For Problem 1-10, solve for the variable in the equation given and check your solution.

1.  $-15 = \frac{m}{3}$

2.  $0.2 = \frac{q}{0.6}$

3.  $\frac{n}{22} = 44$

4.  $\frac{t}{-2.3} = 2.1$

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

6.  $\frac{x}{1.2} = 3$

7.  $\frac{y}{9} = 0$

8.  $-18 = \frac{x}{2}$

9.  $\frac{x}{0} = -13$

10.  $\frac{x}{91} = 9$

For Problem 11 and 12, fill in the blank.

11. Dividing by 3 is the same as multiplying by \_\_\_\_\_.

12. Multiplying by  $\frac{1}{4}$  is the same as dividing by \_\_\_\_\_.

For Problem 13-15, tell whether the statement given is true or false.

13. To clear the denominator in  $\frac{1}{9}x = 5$ , multiply by 5.14. Multiplying by the reciprocal of  $\frac{3}{8}$  in  $\frac{2}{3}x = \frac{3}{8}$  will isolate the variable.15. In  $\frac{3}{4}x = 8$ , the solution to  $x$  is  $8 \times \frac{3}{4}$ .

Section 8.11 Two-Step EquationsPractice Problems 8.11

For Problem 1-5, tell whether or not the step(s) given will solve the equation.

1.  $x - 22 = 10$     Add 22 to both sides of the equation.
  
2.  $13 - x = 33$     Subtract 13 from both sides of the equation.
  
3.  $\frac{x}{7} = 12$     Multiply by 12 on both sides of the equation.
  
4.  $\frac{2}{y} = 5$     Multiply by 5 on both sides of the equation, then divide by 5.
  
5.  $\frac{x}{4} = 9$     Multiply by 4 on both sides of the equation.

For Problem 6-10, tell whether it is a one-step or two-step to solve the equation given. Name the steps and show them.

6.  $5 = \frac{10}{z}$
7.  $\frac{11}{m} = 22$
  
8.  $\frac{n}{3} = 16$
9.  $7 = p - 8$
  
10.  $25 = 4 - t$

For Problem 11 and 12, solve the multiple-choice problem.

11. Find the equivalent statement for  $x - 8 = 6$ .

a)  $8 - x = 6$

b)  $6 + 8 = x$

c)  $6 + x = 8$

d)  $8 - 6 = x$

12. Find the equivalent statement for  $\frac{x}{y} = z$ .

a)  $\frac{y}{x} = z$

b)  $\frac{z}{y} = x$

c)  $xz = y$

d)  $yz = x$

For Problem 13-15, solve the equation given and check your solution.

13.  $\frac{x}{11} = 12$

14.  $\frac{5}{p} = 6$

15.  $16 - m = 11$

Section 8.12 Multi-Step Equations

Practice Problems 8.12

For Problem 1-4, complete the “Do” and “Undo” table given.

1.  $5x + 20 = 35$

“Do”	“Undo”

2.  $10 = 4x - 14$

“Do”	“Undo”

3.  $9 - 2x = 30$

“Do”	“Undo”

4.  $\frac{1}{5}x + 11 = 23$

“Do”	“Undo”

For Problem 5-10, find the errors in the calculations given and then find the correct solution.

5.

$2x + 18 = 34$

~~$2x + 18 = 34$~~

~~$-18 = -18$~~

$2x = 52$

~~$\frac{2x}{2} = \frac{52}{2}$~~

$x = 26$

6.

$3 - 4x = -13$

~~$3 - 4x = -13$~~

~~$+3$~~        $+6$

$-4x = 19$

~~$\frac{-4x}{-4} = \frac{19}{-4}$~~

$x = \frac{19}{-4}$

7.

$$10 - 4x = -2$$

$$10 - \cancel{4x} = -2$$

$$\cancel{+4x} = +4x$$

$$10 = 2x$$

$$5 = x$$

8.

$$4x - 6 = 14$$

$$4x - \cancel{6} = 14$$

$$\cancel{+6} = +6$$

$$4x = 20$$

$$4 = \frac{x}{20}$$

$$x = \frac{1}{5}$$

9.

$$3y + 3 = -9$$

$$\cancel{-3} = \cancel{-3}$$

$$3y = -6$$

$$\frac{3y}{3} = \frac{-6}{3}$$

$$y = -2$$

10.

$$14 - 6p = 0$$

$$\frac{\cancel{-6}}{\cancel{-6}}p = \frac{14}{-6}$$

$$p = \frac{7}{-3}$$

For Problem 11-15, solve for the variable in the equation given and check your solution.

11.  $3x - 7 = 11$

12.  $22 = \frac{1}{2}x + 5$

13.  $6x - 1 = 11$

14.  $17 - 4x = -3$

15.  $\frac{3}{4}y + 5 = 6$



Section 8.13 Solving Equations with Fractions and DecimalsPractice Problems 8.13

For Problem 1-10, solve for the variable in the equation given.

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

2.  $\frac{2}{3}s + \frac{1}{6} = 5$

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

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

5.  $\frac{4}{x} = \frac{3}{23}$

6.  $\frac{3x+1}{4} = \frac{1}{5}$

7.  $\frac{3x-3}{4} = \frac{5x-4}{8}$

8.  $2x + 2.5 = 4.5$

9.  $0.125x - 0.25 = 0.625$

10.  $2.2x - 1.2 = 7.6$

For Problem 11-15, solve the word problem given.

11. Joel's age is 8 years more than half of Elijah's age. Together, their ages add up to 32. Let  $x$  be Elijah's age. Write an equation for the sum of their ages. How old is Elijah? How old is Joel?

12. Sally is 4 years older than double Micah's age. The sum of their ages is 28. Let  $x$  be Micah's age. Write an equation for the sum of their ages. How old is Micah? How old is Sally?

13. Seven more than two-thirds of a number is equal to three times the number. Write an equation to find the number and then solve the equation.

14. From collecting pop cans, Hunter earned \$8.50, Jackson earned \$4.50, Jeremiah earned  $x$ , and Seth (who was the youngest of the group) earned 50 cents. All together, they earned \$15.50. How much did Jeremiah (the student who wrote this problem) earn?

15. Consecutive numbers are right next to each other. They are one digit apart like 3 and 4 or 91 and 92. If two consecutive numbers have a sum of 33, what are the numbers? Let one number be  $x$ . What is the other number in terms of  $x$ ?

Section 8.14 Module Review

For Problem 1 and 2, substitute the values for the variables and evaluate the expression given.

1.  $3x^2 - 2y + 4$  when  $x = -2$  and  $y = 7$

2.  $-4(7t - 2t)$  when  $t = 3$

For Problem 3-5, write an algebraic expression for the written expression given.

3. Four more than 3 times a number

4. The product of  $-8$  and a number

5. 16 less than a number

For Problem 6 and 7, write an algebraic equation for the written sentence given.

6. The quotient of a number and 4 is equal to 6 times the number plus 5

7. One number is six times another number; their difference is 18

For Problem 8 and 9, underline the variables, circle the coefficient of the variables, and put a square around the constants.

8.  $3x + y - 7$

9.  $3t - 4s + 12$

For Problem 10-12, simplify the expression given by combining like terms.

10.  $3n + 5n^2 - 3 + 2n$

11.  $-4(x + 3) + 12$

12.  $3m + 2p - 4(m + 3) - p$

For Problem 13 and 14, solve the problem given.

13. Three students simplified the expression  $13s - (t - 6)7$ . Which solution below is correct?

Jeffrey	Timothy	Zack
$13s - (t - 6)7$	$13s - (t - 6)7$	$13s - (t - 6)7$
$13s - t - 6(7)$	$13s - t(7) - 6(7)$	$13s - (t(7) - 6(7))$
$13s - t + (+6)(7)$	$13s - 7t - 42$	$13s - (7t - 42)$
$13s - t + 42$		$13s - 7t + 42$

14. Sandy, Justin, and Andy were given the expression  $3x + 5 - 2x + 1 + 4x$ . They were instructed to add a parenthesis and simplify the expression. Next, they were instructed to give the simplified expressions to Angel, Stefan, and Kyreece so they could determine where the parenthesis was added.

a) Sandy's simplified expression was  $5x + 16$ . Where should Angel put the parenthesis in the expression  $3x + 5 - 2x + 1 + 4x$  to get  $5x + 16$ ?

b) Justin's simplified expression was  $5x + 3$ . Where should Stefan put the parenthesis in  $3x + 5 - 2x + 1 + 4x$  to get  $5x + 3$ ?

c) Andy's simplified expression was  $10x + 1$ . Where should Kyreece put the parenthesis in  $3x + 5 - 2x + 1 + 4x$  to get  $10x + 1$ ?

For Problem 15-18, solve the equation given for the variable and check your solution.

15.  $m - 26 = 14.3$

16.  $207 = t + 14.8$

17.  $-8 = c - 5$

18.  $8 - 3z = 14$

For Problem 19 and 20, use the given information to solve the problem.

To convert from Celsius (C) temperatures to Fahrenheit (F), use the formula  $F = 1.8C + 32^\circ$ .

19. If it is  $37^\circ$  Celsius (C), what is the temperature in degrees Fahrenheit (F)?

20. If it is  $212^\circ$  Fahrenheit (F), what is the temperature in degrees Celsius (C)?

For Problem 21-23, solve the equation given and simplify if possible.

21.  $-13 = 2t - t - 10$

22.  $4 + \frac{1}{8}q = \frac{3}{4}$

23.  $2.45 + 1.5m = -1$

For Problem 24 and 25, solve the problem given after setting up an equation to represent it.

24. Lamon cut a 3 m. board into two pieces. If one piece is 20 cm. shorter than the other, how long is each piece (1 m. = 100 cm.)?

25. Rickey's cell phone bill is \$45.00 per month and \$0.10 per minute for every minute used over Rickey's base plan of 300 minutes. If Rickey's monthly cell phone bill was \$56.00, how many minutes over his base plane did he use?



For Problem 13 and 14, solve the problem given.

13. Akeru and Mykal solved the problem below using the same steps, but found different solutions. Who is correct?

Akeru
$13s - (t - 6)7$
$13s + -1(t - 6)7$
$13s + -1(t(7) - 6(7))$
$13s + -1(7t - 42)$
$13s + -7t + 42$
$13s - 7t + 42$

Mykal
$13s - (t - 6)7$
$13s + -1(t - 6)7$
$13s + -1(t(7) - 6(7))$
$13s + -1(7t - 42)$
$13s + -(7t) + -1(-42)$
$13s - 7t - 43$

14. Evan and Joshua changed the expression below by adding parenthesis. Simplify  $a$  and  $b$  below to see how the final expression changes.

$$14m - 22p + 13 + 16p - 8$$

$$14m - 22p + 16p + 13 - 8$$

$$14m + p(-22 + 16) + 13 - 8$$

$$14m + p(-6) + 5$$

$$14m + -6p + 5$$

$$14m - 6p + 5$$

a) Evan added parenthesis here:  $14m - 22p + (13 + 16)p - 8$

b) Joshua added parenthesis here:  $14(m - 22)p + 13 + 16p - 8$

For Problem 15-18, solve the equation given for the variable and check your solution.

15.  $x + 4.3 = 10.2$

16.  $29 = m - 6$

17.  $-16 = -3c + 4$

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

For Problem 19 and 20, use the given information to solve the problem.

Because  $1.8 = 1 \frac{8}{10} = \frac{18}{10} = \frac{9}{5}$ , the formula to convert Celsius to Fahrenheit ( $F = 1.8C + 32^\circ$ ) may be written as

follows:

$$F = \frac{9}{5}C + 32^\circ$$

The variable F is solved in terms of C. To find the formula to convert Fahrenheit to Celsius, you need to isolate the variable or solve for C in terms of F in the equation  $F = \frac{9}{5}C + 32^\circ$ .

19. Find the formula for Celsius temperature in terms of Fahrenheit temperature.

20. Use the formula to find normal room temperature in Celsius that is equal to  $68^\circ$  Fahrenheit.

For Problem 21-23, solve the equation given and simplify if possible.

21.  $-5x - 7 - 3x = -33$

22.  $\frac{1}{2}n - \frac{1}{3} = \frac{2}{3}$

23.  $26 = 0.65 - 0.5s$



For Problem 24 and 25, solve the word problem given.

24. Jack, Luke, and Alec went swimming at a pool where admission was \$5.00 per person. They rented floating rafts for \$1.50 per hour. If the total amount they paid was \$28.50, how many hours did they rent the rafts for?

25. Todd rented a truck to take his daughter Mia to college. The rental fee was a flat rate of \$95.00 plus \$0.56 per mile. Todd filled up the truck with gasoline before he returned it so he would not be charged a higher rate after returning the truck to the rental company. It cost him \$48.00 to fill the tank. How many miles did Todd have to drive to take Mia to college if his total costs that day were \$214.12?