Guided Practice

Translate each phrase into an algebraic expression. (Example 1)

1. four dollars less than the cost of the sweater

2. thirteen more students than teachers

3. money earned babysitting at $10 per hour

4. thirty pencils divided among some students

Evaluate each expression if $g = 6$, $h = 10$, and $j = 5$. (Examples 2 and 3)

5. $h + 15$
6. $g - 3$
7. $20 - h + g$

8. $22 - 3j$
9. $\dfrac{gh}{j}$
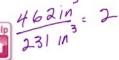10. $4g + (3h - 4j)$

11. One pint of liquid is the same as 16 fluid ounces. (Example 4)

    a. Suppose the number of pints of liquid is represented by p. Write an expression to find the number of fluid ounces.

    b. How many fluid ounces are in 5 pints?

Independent Practice

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Translate each phrase into an algebraic expression. (Example 1)

12. three times as many balloons

13 twenty-four pieces of candy divided among some students

14. the number of people increased by thirteen

15. the number of inches in any number of feet

16. four more than the number of weeks in a group of days

17. four less than the amount of cents in a number of dimes

[Handwritten notes: $\frac{462\,in^3}{231\,in^3} = 2$; LET C REPRESENT THE CUBIC INCHES OF WATER; LET g REPRESENT THE NUMBER OF GALLONS; $\frac{C}{231} = g$; $231g =$; $\frac{g}{231}$; $\frac{231}{g}$; $231\,in^3 = 1\,GAL$]

Evaluate each expression if $a = 9$, $b = 4$, and $c = 11$. (Examples 2 and 3)

18. $b + 9$
19. $13 - a$
20. $2c - 5$
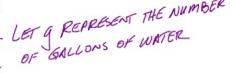21. $18 + 4b$

22. $\dfrac{ab}{6}$
23. $\dfrac{8a}{b}$
24. $5c - 4a$
25. $7b - 2c$

26. $45 - \dfrac{bc}{2}$
27. $\dfrac{ac}{3} - 15$
28. $4b + 3c - 5a$
29. $6c - 2a + 6b$

30. A studio charges a sitting fee of $25 plus $7 for each portrait sheet ordered. Write an expression that can be used to find the total cost to have photographs taken. Then find the cost of purchasing twelve portrait sheets. (Example 4)

31. One gallon of water is equal to 231 cubic inches. Write an expression for the number of gallons of water in any number of cubic inches of water. (Example 4)

[Handwritten note: LET g REPRESENT THE NUMBER OF GALLONS OF WATER]

Evaluate each expression if $x = 9$, $y = 4$, and $z = 12$.

32. $7z - (y + x)$
33. $(8y + 5) - 2z$
34. $(5z - 4x) + 3y$

35. $6x - (z - 2y)$
36. $2x + (4z - 13) - 5$
37. $(29 - 3y) + 4z - 7$

38. Financial Literacy A cell phone company offers two different monthly plans. Plan A costs a flat rate of $0.10 per minute for all calls. Plan B costs $29.99 for the first 500 minutes and $0.08 for each additional minute. Which plan is less costly if a person uses 750 minutes per month? Explain.

39 One bushel of apples from a dwarf apple tree is equal to 42 pounds. Write an expression to find the number of pounds of apples in any number of bushels. If one tree can produce 6 bushels, how many pounds of apples will an orchard of 100 trees produce?

40. A car rental company charges a one-time fee of $95, plus $65 per day. Write an expression that can be used to find the cost of renting a car for any number of days. If George rents a car for 4 days, what is the total cost?

41. CCSS Multiple Representations In this problem, you will use algebra to describe a relationship. Jacinda used the table below to help convert measurements while she was cooking.

Number of Cups (c)	4	8	12	16
Number of Quarts (q)	1	2	3	4

a. **Words** Write an expression in words that describes the relationship between the number of quarts and the number of cups.

b. **Symbols** Write an algebraic expression that represents the number of quarts in c cups.

c. **Numbers** Use the expression in part **b** to find the number of quarts in 100 cups.
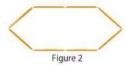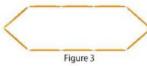
H.O.T. Problems Higher Order Thinking

42. CCSS Model with Mathematics Write an algebraic expression that has two different variables and two different operations: addition, subtraction, multiplication, or division. Then write a real-world problem that uses the expression.

43. CCSS Find the Error John is writing an algebraic expression for the phrase *five less than a number*. Find his mistake and correct it.

Let n represent the number.
$5 - n$

44. CCSS Persevere with Problems Franco constructed the objects below using toothpicks.

Figure 1   Figure 2   Figure 3

Write two different rules that relate the figure number to the number of toothpicks in each figure. Explain how you arrived at your answers.

45. Building on the Essential Question Cassandra needs to evaluate the expression $a(x + y)$. After she replaces the variables with numerical values, in which order should she perform the operations of addition and multiplication? Explain.