1-1 Algebraic Expressions

Practice and Problem Solving: A/B

Write an algebraic expression for each phrase.

1. Four more than the price, p

   $p+4$

2. Five less than three times the length, L

Write a word phrase for each algebraic expression.

3. $25 - 0.6x$

   twenty five minus the product of six and X.

4. $\frac{2}{3}y + 4$

Use the Distributive Property to simplify each expression.

5. $(100 + 4z)20$

   $2000 + 80z$

6. $0.75(3.5a - 6b)$

Factor each expression.

7. $45c + 10d$

   $5(9c + 2d)$

8. $27 - 9x + 15y$

Solve. Show each step.

9. A construction worker bought several bottles of juice for \$3 at the convenience store. She paid for them with a \$20 bill. If j represents the number of bottles of juice, write an expression for the change she should receive.

   $20 - 3j$

10. A giant bamboo plant grew an average of 18 centimeters per year. The botanist started measuring the plant when it was 5 centimeters tall. If y represents the number of years the botanist has measured the plant, what expression represents its height?

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LESSON 12

One-Step Equations with Rational Coefficients

Practice and Problem Solving: A/B

Solve by adding or subtracting.

1. $0.3n - 6 = -2$

   $+6 \quad +6$

   $\frac{.3n}{.3} = \frac{4}{.3}$

   $n = 13\frac{1}{3}$

2. $y + 0.4 = 2$

   $y =$ _____

3. $7 = 0.5a - 5$

   $+5 \quad +5$

   $12 = .5a$

   $a = 24$

4. $0 = \frac{1}{3}v + 1$

   $v =$ _____

Solve by multiplying or dividing.

5. $\frac{15.5z}{15.5} = \frac{-77.5}{15.5}$

   $z = -5$

6. $\frac{t}{-11} = 11$

   $t =$ _____

7. $\frac{0.5m}{.5} = \frac{0.75}{.5}$

   $m = 1.5$

8. $\frac{r}{4} = 250$

   $r =$ _____

Write each sentence as an equation.

9. Eight less than $\frac{1}{3}$ a number n is -13.

   $\frac{1}{3}x - 8 = -13$

10. A number f multiplied by -12.3 is -73.8.

Write an equation. Then, solve.

11. During unusually cold weather, the temperature in Miami Beach was 10°C. This was 12 degrees more than in Tallahassee. What is the temperature in Tallahassee?

    $T + 12 = 10 \quad t = -2°$

12. A swimmer swam 48 kilometers in d days. What is the value of d if the swimmer swam an average of 3.2 kilometers daily?

13. Fifteen tickets cost $193.75. What is the average cost of each ticket?

    $15x = 193.75 \quad \$12.91$

    $15\overline{)193.75}$

14. A student walks $\frac{1}{4}$ mile from her home to the store on her way to a friend's house. If the store is $\frac{1}{3}$ of the way to her friend's house, how far is her friend's house from her home?

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Name _____ Date _____ Class _____

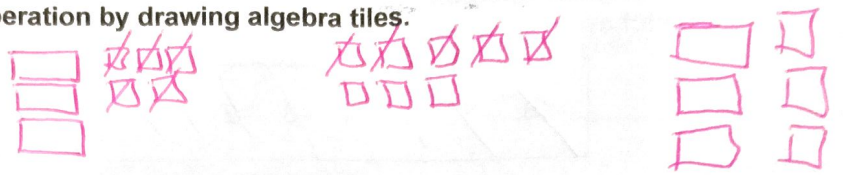
LESSON 1-3

Writing Two-Step Equations

Practice and Problem Solving: A/B

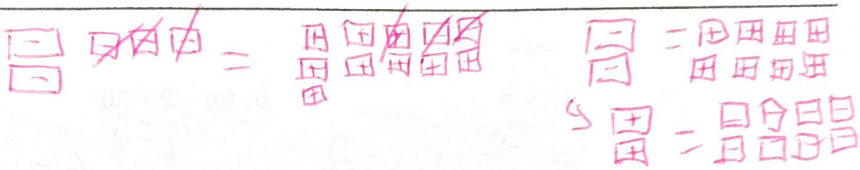
Model each two-step operation by drawing algebra tiles.

1. $3m + 5 = 8$



$x = 1$

2. $-2x - 3 = 5$.



$x = -4$

Write an equation to represent each problem.

3. The sum of fifteen and six times a number t is eighty-one. What is the number?

$15 + 6t = 81$

4. An electrician charges $40 to come to your house. She also charges $55 for each hour that she works. The electrician charges you a total of $190. How many hours does the electrician work at your house? Use h for the number of hours.

$55x + 40 = 190$

5. A taxi charges $1.75 plus a fee of $0.75 for each mile traveled. The total cost of a ride, without a tip, is $4.75. How many miles is the trip? Use m for the number of miles traveled.

$.75m + 1.75 = 4.75$

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LESSON 14

Solving Two-Step Equations

Practice and Problem Solving: A/B

Solve each equation. Cross out each number in the box that matches a solution.

-18	-8	-6	-4	-3	-2	2	3	4	6	8	18

1. $5x + 8 = 23$
$-8 \quad -8$
$5x = 15$
$x = 3$

2. $-2p - 4 = 2$
$+4 \quad +4$
$-2p = 6$
$p = -3$

3. $6a - 11 = 13$
$6a = 24$
$a = 4$

4. $4n + 12 = 4$
$-12 \quad -12$
$\frac{4n}{4} = \frac{-8}{4}$
$n = -2$

5. $9g + 2 = 20$
$9g = 18$
$g = 2$

6. $\frac{k}{6} + 8 = 5$
$-8 \quad -8$
$6 \cdot \frac{k}{6} = -3 \cdot 6$
$k = -18$

7. $\frac{s}{3} - 4 = 2$
$\frac{s}{3} = 6$
$s = 18$

8. $\frac{c}{2} + 5 = 1$
$-5 \quad -5$
$2 \cdot \frac{c}{2} = -4 \cdot 2$
$c = -8$

9. $9 + \frac{a}{6} = 8$
$\frac{a}{6} = -1$
$a = -6$

Solve. Check each answer.

10. $3v - 12 = 15$
$+12 \quad +12$
$\frac{3v}{3} = \frac{27}{3}$
$v = 9$

11. $8 + 5x = -2$
$5x = -10$
$x = -2$

12. $\frac{d}{4} - 9 = -3$
$+9 \quad +9$
$4 \cdot \frac{d}{4} = 6 \cdot 4$
$d = 24$

Write an equation to represent the problem. Then solve the equation.

13. Two years of local Internet service costs $685, including the installation fee of $85. What is the monthly fee?

$24x + 85 = 685$
$\$25$ per month

14. The sum of two consecutive numbers is 73. What are the numbers?

$x + x + 1 = 73$
$2x + 1 = 73$
$-1 \quad -1$
$\frac{2x}{2} = \frac{72}{2}$
$x = 36$
36, 37

$12x = 600$
$x =$

* consecutive are numbers that come after each other such as 6 and 7 or 12 and 13

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