Learning Objective: Students will be able to write an algebraic expression that represented a verbal phrase.

Warm Up

1. $\dfrac{1}{10} + \dfrac{13}{18}$

5. $\dfrac{7}{13} + \dfrac{1}{5}$

9. $\dfrac{5}{8} + \dfrac{2}{7}$

2. $\dfrac{3}{16} + \dfrac{1}{6}$

6. $\dfrac{7}{20} + \dfrac{11}{20}$

10. $\dfrac{4}{15} + \dfrac{3}{5}$

Learning Objective: Students will be able to write an algebraic expression that represented a verbal phrase.
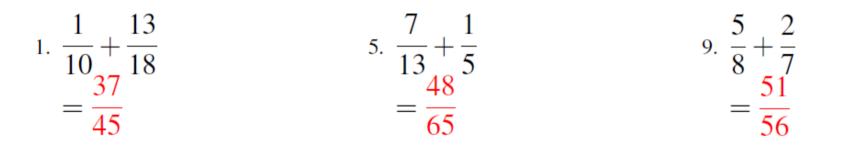
Warm Up Answers

1. $\dfrac{1}{10} + \dfrac{13}{18}$

$= \dfrac{37}{45}$

5. $\dfrac{7}{13} + \dfrac{1}{5}$

$= \dfrac{48}{65}$

9. $\dfrac{5}{8} + \dfrac{2}{7}$

$= \dfrac{51}{56}$

2. $\dfrac{3}{16} + \dfrac{1}{6}$

$= \dfrac{17}{48}$

6. $\dfrac{7}{20} + \dfrac{11}{20}$

$= \dfrac{9}{10}$

10. $\dfrac{4}{15} + \dfrac{3}{5}$

$= \dfrac{13}{15}$

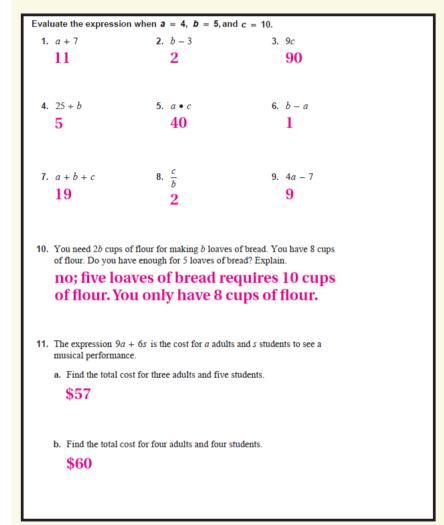Learning Objective: Students will be able to write an algebraic expression that represented a verbal phrase.

Homework Answers

3.1 Record and Practice Journal

Evaluate the expression when $a = 4$, $b = 5$, and $c = 10$.

1. $a + 7$
   11

2. $b - 3$
   2

3. $9c$
   90

4. $25 \div b$
   5

5. $a \cdot c$
   40

6. $b - a$
   1

7. $a + b + c$
   19

8. $\dfrac{c}{b}$
   2

9. $4a - 7$
   9

10. You need $2b$ cups of flour for making b loaves of bread. You have 8 cups of flour. Do you have enough for 5 loaves of bread? Explain.

    no; five loaves of bread requires 10 cups of flour. You only have 8 cups of flour.

11. The expression $9a + 6s$ is the cost for a adults and s students to see a musical performance.

    a. Find the total cost for three adults and five students.

    $57

    b. Find the total cost for four adults and four students.

    $60

Learning Objective: Students will be able to write an algebraic expression that represented a verbal phrase.

Lesson 3.2   November 3, 2014

Essential Question:

How can you write an expression that represents an unknown quantity?

Lesson 3.2   November 3, 2014

Lesson Objective:

Students will be able to:

write an algebraic expression that represented a verbal phrase.

Self-Evaluation Scale

Score	Description
4	I can teach other students how to write an algebraic expression that represented a verbal phrase.
3	I can write an algebraic expression that represented a verbal phrase.
2	I recognize, but still need help to write an algebraic expression that represented a verbal phrase.
1	I do not know how to write an algebraic expression that represented a verbal phrase.

Learning Objective: Students will be able to write an algebraic expression that represented a verbal phrase.

t l

a. Complete the table.

Variable	Phrase	Expression
n	4 more than a number	$4+n$
m	the **difference** of a number and 3	$m-3$
x	the **sum** of a number and 8	$8+x$
p	10 **less than** a number	$p-10$
n	7 units **farther** away	$7+n$
t	8 minutes **sooner**	$t-8$
w	12 minutes **later**	$w+12$
y	a number **increased** by 9	$9+y$

$$n \times n = n^2$$
$$n + n = 2n$$

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Some words that imply math operations

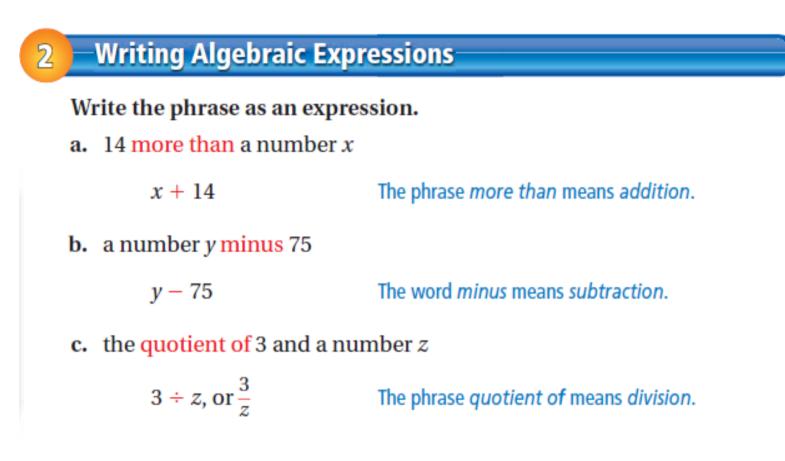| Operation	Addition	Subtraction	Multiplication	Division
Key Words and Phrases	added to plus sum of more than increased by total of and	subtracted from minus difference of less than decreased by fewer than take away	multiplied by times product of twice of	divided by quotient of

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1 Writing Numerical Expressions

Write the phrase as an expression.

a. 8 fewer than 21

$21 - 8$ The phrase *fewer than* means *subtraction.*

b. the product of 30 and 9

30×9, or $30 \cdot 9$ The phrase *product of* means *multiplication.*

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2 Writing Algebraic Expressions

Write the phrase as an expression.

a. 14 more than a number x

$x + 14$ The phrase *more than* means *addition*.

b. a number y minus 75

$y - 75$ The word *minus* means *subtraction*.

c. the quotient of 3 and a number z

$3 \div z$, or $\dfrac{3}{z}$ The phrase *quotient of* means *division*.

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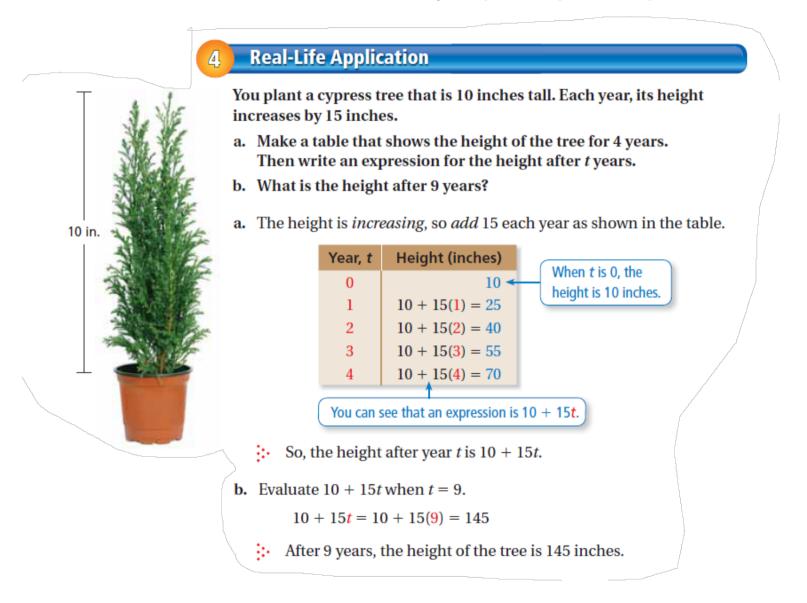
$$2m + 153.5$$

3 **Writing an Algebraic Expression**

The length of Interstate 90 from the West Coast to the East Coast is 153.5 miles more than 2 times the length of Interstate 15 from southern California to northern Montana. Let m be the length of Interstate 15. Which expression can you use to represent the length of Interstate 90?

(A) $2m + 153.5$ (B) $2m - 153.5$ (C) $153.5 - 2m$ (D) $153.5m + 2$

The word *times* means multiplication. So, multiply 2 and m.

$2m + 153.5$

The phrase *more than* means addition. So, add $2m$ and 153.5.

∴ The correct answer is (A).

November 3, 2014 Period 5 Lesson 3.2

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4 Real-Life Application

You plant a cypress tree that is 10 inches tall. Each year, its height increases by 15 inches.

a. **Make a table that shows the height of the tree for 4 years. Then write an expression for the height after t years.**

b. **What is the height after 9 years?**

10 in.

a. The height is *increasing*, so *add* 15 each year as shown in the table.

Year, t	Height (inches)
0	10
1	$10 + 15(1) = 25$
2	$10 + 15(2) = 40$
3	$10 + 15(3) = 55$
4	$10 + 15(4) = 70$

When t is 0, the height is 10 inches.

You can see that an expression is $10 + 15t$.

∴ So, the height after year t is $10 + 15t$.

b. Evaluate $10 + 15t$ when $t = 9$.

$$10 + 15t = 10 + 15(9) = 145$$

∴ After 9 years, the height of the tree is 145 inches.

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Assignment

Complete problems 8, 12, 16, 20, 26, 28, 30, & 34 on pages 122 - 123 in your Big Ideas Text Book.

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Lesson 3.2

November 3, 2014

Essential Question:

How can you write an expression that represents an unknown quantity?

Lesson 3.2   November 3, 2014

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November 3, 2014 Period 5 Lesson 3.2

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Homework

In your Big Ideas Record and Practice Journal page 64.