Name _____ Date _____

LESSON 1.3

Study Guide

For use with the lesson "Write Expressions"

GOAL **Translate verbal phrases into expressions.**

Vocabulary

A **verbal model** describes a situation using words as labels and using math symbols to relate the words.

A **rate** is a fraction that compares two quantities measured in different units.

A **unit rate** is a rate whose fraction has a denominator of 1.

EXAMPLE 1 Translate verbal phrases into expressions

Translate the phrase into an expression.

a. 8 more than the product of 5 times a number w

b. The quotient of 11 and the sum of 7 and a number x

c. The square of a number y decreased by 13

Solution

	Verbal Phrase	Expression
a.	8 more than the product of 5 times a number w	$8 + 5w$
b.	The quotient of 11 and the sum of 7 and a number x	$\frac{11}{7 + x}$
c.	The square of a number y decreased by 13	$y^2 - 13$

Exercises for Example 1

Translate the phrase into an expression.

1. The difference of 3 times a number m and 5

2. 26 divided by a number n

3. $\frac{1}{3}$ of a number p

4. The sum of 9 and the square of a number k

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LESSON 1.3

Study Guide *continued*

For use with the lesson "Write Expressions"

EXAMPLE 2 Use a verbal model to write an expression

A student reads *p* pages of a 230-page book. Write an expression for the number of unread pages in the book.

Solution

STEP 1 **Write** a verbal model. Pages in book − Pages read

STEP 2 **Translate** the verbal model into an algebraic expression. $230 \quad - \quad p$

An expression that represents the number of unread pages in the book is $230 - p$.

Exercises for Example 2

Write an expression for the situation.

5. Total cost of n notebooks if each notebook costs $1.25

6. The time it takes to get to school and home again if you walk 5 minutes to the bus stop and ride the bus for m minutes

EXAMPLE 3 Find a unit rate

An airport checks in 460 passengers in 5 hours. Find the unit rate.

Solution

$$\frac{460 \text{ passengers}}{5 \text{ hours}} = \frac{460 \text{ passengers} \div 5}{5 \text{ hours} \div 5} = \frac{92 \text{ passengers}}{1 \text{ hour}}$$

The unit rate is 92 passengers per hour.

Exercises for Example 3

Find the unit rate.

7. $\frac{129 \text{ miles}}{6 \text{ gallons}}$

8. $\frac{18 \text{ people}}{3 \text{ tables}}$

9. $\frac{\$28}{4 \text{ tickets}}$

10. $\frac{1500 \text{ meters}}{7.5 \text{ minutes}}$