NAME _____ DATE _____

Study Guide

Student Edition
Pages 6–11

Variables and Expressions

Any letter used to represent an unspecified number is called a variable. You can use variables to translate verbal expressions into algebraic expressions.

Words	Symbols
4 more than a number	$x + 4$
a number decreased by 8	$b - 8$
the product of 5 and a number	$5c$
a number divided by 8	$h \div 8$ or $\frac{h}{8}$
a number squared	y^2

The algebraic expression x^n represents a product in which each factor is the same. The small raised n is the exponent and it tells how many times the base, x, is used as a factor.

Example: Evaluate 3^4.

$$3^4 = 3 \cdot 3 \cdot 3 \cdot 3$$
$$= 81$$

Write a verbal expression for each algebraic expression.

1. $w - 1$

2. $\frac{1}{3}a^3$

3. $81 + 2x$

Write an algebraic expression for each verbal expression.

4. a number decreased by 5

5. four times a number

6. 8 less than a number

7. a number divided by 6

8. a number multiplied by 37

9. the sum of a number and 9

10. 3 less than 5 times a number

11. twice the sum of 15 and a number

12. 7 more than the product of 6 and a number

13. 30 increased by 3 times the square of a number

Write each expression as an expression with exponents.

14. $7 \cdot 7 \cdot 7$

15. $3 \cdot p \cdot p$

16. $9(b)(b)(b)(b)(b)$

Evaluate each expression.

17. 2^3

18. 10^5

19. 4^4