

# Writing Expressions and Equations

(Pages 4–7)

Letters such as  $x$  and  $y$  in a mathematical expression are called **variables**. Variables represent unknown numbers. An **algebraic expression** contains at least one variable and at least one mathematical operation. A **numerical expression** contains only numbers and mathematical operations. In multiplication expressions, the quantities being multiplied are called **factors**, and the result is the **product**. An **equation** is a sentence that contains an equals sign (=).

## EXAMPLES

Verbal Expression	Algebraic Expression
2 less than the product of 5 and a number $y$	$5y - 2$
The quotient of $n$ and 7, increased by 4	$(n \div 7) + 4$

Sentence	Equation
Nine times $q$ minus 4 is equal to 23.	$9q - 4 = 23$
Five more than the product of 6 and $k$ is the same as 17.	$6k + 5 = 17$

## PRACTICE

*Write an algebraic expression for each verbal expression.*

- the sum of  $g$  and 14
- 10 less than the quotient of  $n$  and 2
- $k$  divided by 12
- the product of 6 and  $r$ , increased by 8

*Write a verbal expression for each algebraic expression.*

- $x - 3$
- $9y + 4$
- $\frac{n}{6}$
- $2(p + 4)$

*Write an equation for each sentence.*

- A number  $f$  decreased by 2 equals 13.
- The quotient of 24 and  $a$  is the same as 8.
- Twice the difference of  $h$  and 6 is equivalent to 3 times  $y$ .

*Write a sentence for each equation.*

- $z - 6 = 17$
- $9x + 1 = 10$
- $\frac{18}{s} = 6$
- $2(x \div 4) = 8$



- 16. Standardized Test Practice** Which of the following is an algebraic expression for seven minus the product of 5 and a number?

- A**  $5n - 7$       **B**  $(5 \div n) - 7$       **C**  $7 - 5n$       **D**  $7 - (5 \div n)$

**Answers:** 1.  $g + 14$  2.  $(n \div 2) - 10$  3.  $\frac{12}{k}$  4.  $6r + 8$  5. 3 less than  $x$  6. nine times  $y$  increased by 4 7.  $n$  divided by 6  
8. twice the sum of  $p$  and 4 9.  $f - 2 = 13$  10.  $24 \div a = 8$  11.  $2(h - 6) = 3y$  12.  $z$  minus 6 equals 17  
13. 9 times  $x$  plus 1 is equal to 10 14. 18 divided by  $s$  is 6 15. twice the quotient of  $x$  and 4 is 8 16. C