



Name _____ Date _____

Variables and Expressions (pages 22–25)

In algebra, **variables**, usually letters, are used to represent numbers. **Algebraic expressions** are combinations of variables, numbers, and at least one operation. If you replace variables with numbers, you can **evaluate**, or find the value of, an algebraic expression.

Showing Multiplication in Algebra	$2 \cdot n$ means $2 \times n$
	$2n$ means $2 \times n$
	np means $n \times p$

EXAMPLES

Evaluate each expression if $h = 9$.

A $26 - h$

$$\begin{aligned} 26 - h &= 26 - 9 && \text{Replace } h \text{ with } 9. \\ &= 17 && \text{Subtract } 9 \text{ from } 26. \end{aligned}$$

B $4h + 8$

$$\begin{aligned} 4h + 8 &= 4 \times 9 + 8 && \text{Replace } h \text{ with } 9. \\ &= 36 + 8 && \text{Multiply } 4 \text{ by } 9. \\ &= 44 && \text{Add } 36 \text{ and } 8. \end{aligned}$$

Try These Together

Evaluate each expression if $q = 7$ and $r = 4$.

1. $q + r - 1$

HINT: Replace the variables.

2. $3q + r$

HINT: Replace the variables, then multiply first.

PRACTICE

Evaluate each expression if $x = 4$ and $y = 9$.

3. $x + 7$

4. $18 - y$

5. $6x - 10$

6. $6 + y$

7. $2xy$

8. $y \div 1$

9. $x + 3x$

10. $x \times y$

11. $40 \div 5x$

Evaluate each expression if $a = 9$, $b = 18$, and $c = 3$.

12. $b \div 6$

13. $b - c$

14. ca

15. $a + b + c$

16. $ab - c$

17. $54 \div a$

18. $cb + 2a$

19. $b - 2a$

20. $b - 3a \div c$

21. **Architecture** To find the perimeter of a rectangle, you can use the expression $2\ell + 2w$ where ℓ and w represent the length and width of the rectangle. Find the perimeter of a rectangle with length 4 m and width 7 m.



22. **Standardized Test Practice** Evaluate $15 - st$ if $s = 2$ and $t = 3$.

A 23

B 10

C 9

D 21

Answers: 1. 10 2. 25 3. 11 4. 9 5. 14 6. 15 7. 72 8. 9 9. 16 10. 36 11. 32 12. 3 13. 15 14. 27 15. 30 16. 159 17. 6 18. 72 19. 0 20. 9 21. 22 m 22. C