

**Commutative and Associative Properties**

Name the property shown by each statement.

1.  $43 + 28 = 28 + 43$

2.  $(9 + 5) + 4 = 9 + (5 + 4)$

3.  $(8 \cdot 7) \cdot 11 = 8 \cdot (7 \cdot 11)$

4.  $12 \cdot 3 \cdot 6 = 3 \cdot 12 \cdot 6$

5.  $(b + 22) + 3 = b + (22 + 3)$

6.  $c \cdot d = d \cdot c$

7.  $2n + 13 = 13 + 2n$

8.  $15 \cdot (2g) = (15 \cdot 2) \cdot g$

Simplify each expression. Identify the properties used in each step.

9.  $(m + 7) + 2$

10.  $4 \cdot x \cdot 8$

11.  $12 + k + 5$

12.  $(y \cdot 3) \cdot 12$

13.  $13 \cdot (3h)$

14.  $7 + 2q + 4$

15.  $6n + (9 + 4) + 5$

16.  $(7 + p + 22)(9 \div 9)$

17. State whether the statement *Subtraction of whole numbers is associative* is true or false. If false, provide a counterexample.