Lesson 3 Reteach

Properties of Operations

Example 1

Name the property shown by the statement $u + v = v + u$.

The order in which the variables are being added changed. This is the Commutative Property of Addition.

Example 2

State whether the following conjecture is *true* or *false*. If *false*, provide a counterexample.

Subtraction of integers is commutative.

Write two subtraction expressions using the Commutative Property.

$17 - 9 \stackrel{?}{=} 9 - 17$ State the conjecture.

$8 \neq -8$ Subtract.

We found a counterexample. That is, $17 - 9 \neq 9 - 17$. So, subtraction is *not* commutative. The conjecture is false.

Example 3

Simplify the expression. Justify each step.

$9 + (3x + 4)$

$9 + (3x + 4) = 9 + (4 + 3x)$ Commutative Property of Addition

$ = (9 + 4) + 3x$ Associative Property of Addition

$ = 13 + 3x$ Simplify.

Exercises

Name the property shown by each statement.

1. $7 \cdot 1 = 7$

Multiplicative Identity

2. $4 + (3y + 2) = (4 + 3y) + 2$

Associative Property of Addition

State whether the following conjectures are *true* or *false*. If *false*, provide a counterexample.

3. The product of two even numbers is odd.   **false; 4 • 6 = 24**

4. The difference of two odd numbers is even.   **true**

5. Simplify $4 + (5x + 2)$. Justify each step.

$4 + (5x + 2) = 4 + (2 + 5x)$ **Commutative Property of Addition**
$ = (4 + 2) + 5x$ **Associative Property of Addition**
$ = 6 + 5x$ **Simplify**