NAME _____ DATE _____

Module 3 Solving Linear Equations of One Variable
Lesson 1 Identifying Properties of Equality

Identify the algebraic property in the following statements.

1. If this = that, then that = this.

_____

2. If $2u = 6$, then $3 \cdot (2u) = 3 \cdot 6$.

_____

3. If $8.6 + 2 = 10.6$, then $5 + 8.6 + 2 = 5 + 10.6$.

_____

4. Reversing the left and right side of an equation produces an equivalent equation.

_____

5. If $w \div 5 = 2$, then $w = 10$.

_____

6. If $M - 7 = 5$, then $M = 12$.

_____

7. If $8 = 2 \cdot 4$, then $8 - 4 = (2 \cdot 4) - 4$.

_____

8. If $-5 + 6 = 1$, then $(-5 + 6) \div 2 = 1 \div 2$.

_____

9. When two different expressions are equal to the same quantity, they are also equal to each other.

_____

10. If $9 = 3 \cdot 3$, then $9 \cdot 2 = (3 \cdot 3) \cdot 2$.

_____

Write an example for the given algebraic property.

11. Multiplication Property of Equality _____

12. Addition Property of Equality _____

13. Symmetric Property of Equality _____

14. Reflexive Property of Equality _____

15. Transitive Property of Equality _____

Journal

1. Explain the difference in the Reflexive Property of Equality and the Symmetric Property of Equality.
2. Use a non-mathematical situation to demonstrate the Addition Property of Equality and the Subtraction Property of Equality.
3. $4 - 2 = 2$. By the Multiplication Property of Equality $3(4 - 2) = (3)(2)$. Since multiplication can be written as successive addition, we can write $3(4 - 2)$ as $(4 - 2) + (4 - 2) + (4 - 2)$. Does $(3)(2) = (4 - 2) + (4 - 2) + (4 - 2)$? If so, what property does this illustrate?
4. Your friend is having trouble remembering the Multiplication Property of Equality. Help this person by designing a memory aid.
5. Explain how you would show that $x = 9$ in the equation $x - 4 = 5$, using the properties of equality.

Cumulative Review

Simplify.

1. $2 \cdot \frac{1}{2}$ _____

2. $-7 + 7$ _____

3. $3 \cdot 5$ _____

4. $2(-6)$ _____

5. $4 \cdot 0$ _____

6. $3 \div 3$ _____

7. $5 - 5$ _____

8. $4 + (-4)$ _____

9. $4 \div 8$ _____

10. $5 - 0$ _____