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



**additional
practice**

Identify the algebraic property.

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|--|---|
| 1. If $3 + 2 = 5$, then $2 + (3 + 2) = 2 + 5$.
<u>Addition Property of Equality</u> | 2. If $6 \cdot 1 = 6$, then $(6 \cdot 1) - 1 = 6 - 1$.
<u>Subtraction Property of Equality</u> |
| 3. Multiplying both sides of an equation by the same nonzero number produces an equivalent equation.
<u>Multiplication Property of Equality</u> | 4. If $a = b$ and $b = c$, then $a = c$.
<u>Transitive Property of Equality</u> |
| 5. $x + y + z = x + y + z$
<u>Reflexive Property of Equality</u> | 6. If $A + B + C = 180$, then $180 = A + B + C$.
<u>Symmetric Property of Equality</u> |
| 7. If $5 \cdot 7 = 35$, then $7 = 35 \div 5$.
<u>Division Property of Equality</u> | 8. If $21 - 21 = 0$, then $(21 - 21) + 6 = 0 + 6$.
<u>Addition Property of Equality</u> |
| 9. If $27 = 9R$ and $27 = 20 + 7$, then $9R = 20 + 7$.
<u>Transitive Property of Equality</u> | 10. If $a + b + c = 16$, then $b + c = -a + 16$.
<u>Subtraction Property of Equality</u> |

Write an example for the given algebraic property. Answers may vary.

11. Multiplication Property of Zero See below.
12. Division Property of Equality See below.
13. Symmetric Property of Equality See below.
14. Reflexive Property of Equality See below.
15. Transitive Property of Equality See below.
 11. Students should show zero times any quantity equals zero.
 12. Students should both sides of an equation being divided by the same nonzero quantity.
 13. Students should show an equation with the left hand side and right hand side quantities reversed.
 14. Students should show some quantity equal to itself.
 15. Students should show that when two different expressions are equal to the same quantity, they are also equal to each other.

Supply the property of equality used in solving the following equations.

16. $-12y = 36$

$$\frac{-12y}{-12} = \frac{36}{-12}$$
$$y = -3$$

Division Property of Equality

17. $\frac{1}{2}x = 7$

$$2 \cdot \frac{1}{2}x = 2 \cdot 7$$
$$x = 14$$

Multiplication Property of Equality

18. $x + 8 = 19$

$$x + 8 - 8 = 19 - 8$$
$$x = 11$$

Subtraction Property of Equality