DIGITAL

NAME _____   DATE _____

guided notes

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

Lesson Objectives

- Recognize and use the Reflexive, Symmetric, and Transitive Properties of Equality.
- Recognize and use the Addition, Subtraction, Multiplication, and Division Properties of Equality.
- Supply the reasons for an algebraic proof when solving a simple equation.

_____ describes a relationship between the values on either

side of an equation. The value on one side is equal to the value on the

other side.

The _____ Property of Equality states that for any real

number a, $a = a$. For example, this property is used to say that $5 =$ ____.

The _____ Property of Equality allows us to say that if $x = 6$,

then $6 = x$. More formally, for all real numbers a and b, if $a = b$, then

_____.

1 Name the property of equality shown below.

For any real number d, $d = d$. _____ Property of Equality

The _____ Property of Equality states that for all real numbers

a, b, and c, if $a = b$, and $b = c$, then _____. For example, if

Newt's age = Roxie's age, and Roxie's age = Lizzie's age, then

_____ age = _____ age.

2 If $x = 9$ and $9 = y$, then _____. Transitive Property of Equality

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The _____ Property of Equality says that if equals are added to equals, then the results are equal. In other words, for all real numbers *a, b,* and *c,* if *a = b,* then _____ = _____ .

The _____ Property of Equality says that if equals are subtracted from equals, then the results are equal. In other words, for all real numbers *a, b,* and *c,* if *a = b,* then _____ = _____ .

The _____ Property of Equality says that if equals are multiplied by equals, then the results are equal. In other words, for all real numbers *a, b,* and *c,* if *a = b,* then _____ = _____ .

The _____ Property of Equality says that if equals are divided by nonzero equals, then the results are equal.

3 ▸ Using the language of algebra, state the Division Property of Equality.

_____

Statements	Reasons
$2x - 10 = 4$	Given
$2x = 14$	_____
$x = 7$	_____

Statements	Reasons
$\frac{x}{3} + 5 = 9$	Given
$\frac{x}{3} = 4$	_____
$x = 12$	_____

4 ▸ Which Property of Equality is used on the equation $3x - 5 = 1$ to get the equation $3x = 6$? _____