Properties of Equality

Addition Property of Equality

If $a = b$, then $a + c = b + c$

We can add the same value to both sides of an equation and the equation is still a true statement.

$$5 = 5$$

Subtraction Property of Equality

If $a = b$, then $a - c = b - c$

We can subtract the same value from both sides of an equation and the equation is still a true statement.

$$15 = 15$$

Multiplication Property of Equality

If $a = b$, then $a \cdot c = b \cdot c$

We can multiply both sides of an equation by the same value and the equation
is still a true statement.

$$2 = 2$$

Division Property of Equality

If $a = b$, then $a \div c = b \div c$

We can divide both sides of an equation by the same value and the equation is
still a true statement.

$$48 = 48$$

Inverse Operations

Pairs of operations that "undo" each other.

Addition and Subtraction are Inverse Operations
Addition and Subtraction "undo" each other.

Multiplication and Division are Inverse Operations
Multiplication and Division "undo" each other.

Using Properties of Equality to solve equations

Additive Property of Equality

Subtraction Property of Equality

Multiplication Property of Equality

Division Property of Equality

Using Properties of Equality to solve equations

Additive Property of Equality

$$x - 4 = 8$$

Subtraction Property of Equality

Multiplication Property of Equality

Division Property of Equality

Using Properties of Equality to solve equations

Additive Property of Equality

$$x + 4 = 8$$

Subtraction Property of Equality

Multiplication Property of Equality

Division Property of Equality

Using Properties of Equality to solve equations

Additive Property of Equality

Subtraction Property of Equality

Multiplication Property of Equality

Division Property of Equality

$$x \div 4 = 8$$

Using Properties of Equality to solve equations

Additive Property of Equality

Subtraction Property of Equality

Multiplication Property of Equality

Division Property of Equality

$$x \cdot 4 = 8$$

Using Properties of Equality to solve equations

Additive Property of Equality

Subtraction Property of Equality

Multiplication Property of Equality

Division Property of Equality

Any operation done to the left side...

...must be done to the right side

...must be done to the left side

Any operation done to the right side...