Solving Equations with Variables on Both Sides

Name _____

Date _____ Period _____

Addition Property of Equality

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

Subtraction Property of Equality

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

Addition and Subtraction are Inverse Operations

Addition and Subtraction "undo" each other.

Multiplication Property of Equality

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

Division Property of Equality

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

Multiplication and Division are Inverse Operations

Multiplication and Division "undo" each other.

Left Side = Right Side

Any operation done to the left side...

...must be done to the left side

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...must be done to the right side

Any operation done to the right side...

Combine the variables on one side of the equation.

Always "undo" addition/subtraction before multiplication/division

Solve the following equations for x

Move x's to left side

$2x - 4 = 5x + 8$

Move x's to right side

$2x - 4 = 5x + 8$

Solve the following equations for x

$4x - 12 = -2(x - 3)$

$-3(x + 1) = -2x + 5x - 9$

Solve the following equations for x

$-3x + 4 = -(x - 6)$ $\qquad$ $4(x + 4) = -x + 8x - 5$

Addition and Subtraction "undo" each other.

Multiplication and Division "undo" each other.

Any operation done to the left side... ...must be done to the left side

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...must be done to the right side Any operation done to the right side...

Combine the variables on one side of the equation.
Always "undo" addition/subtraction before multiplication/division