

Solve Equations with Variables on Both Sides

· Solve equations with variables on both sides.

Your Notes

VOCABULARY

Identity

Example 1. Solve an equation with variables on both sides

Solve
$$15 + 4a = 9a - 5$$
.

Collect variables on one side of the equation and constant terms on the other to solve equations with variables on both

sides.

Solution

15 + 4a = 9a - 5

15 = -5

Write original equation.

Subtract from each side.

Simplify.

Add to each side.

Simplify,

Divide each side

by ____.

Simplify.

The solution is ...

CHECK

$$15 + 4a = 9a - 5$$

Write original equation.

Substitute for a.

Multiply.

Solution checks.

Example 2

Solve an equation with grouping symbols

		STORY COLAR	2.2	
Sol	ve 4	t – 12	= 6	(t + 3)

Solution

$$4t - 12 = 6(t + 3)$$

Write original equation.

Distributive property

Subtract ____ from each side.

Subtract from each side.

Divide each side by .

Checkpoint Solve the equation. Check your solution.

1.
$$3b + 7 = 8b + 2$$

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 2. $6d - 6 = \frac{3}{4}(4d + 8)$

Example 3 Identify the number of solutions of an equation

Solve the equation, if possible.

a.
$$4x + 5 = 4(x + 5)$$

$$b_* 6x - 3 = 3(2x - 1)$$

Solution

a.
$$4x + 5 = 4(x + 5)$$
 Original equation

$$4x + 5 =$$

Distributive property

The equation 4x + 5 =_____ is _____ because

the number 4x equal to 5 more than itself and more than itself. So, the equation has solution.

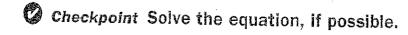
b.
$$6x - 3 = 3(2x - 1)$$

Original equation

$$6x - 3 =$$

Distributive property

The statement 6x - 3 =____ is ____ for all values of x. So, the equation is an



$$3. \ \frac{1}{2}(4t - 6) = 2t$$

$$4.\ 10m - 4 = -2(2 - 5m)$$