Solving Algebraic Equations

MrB4math.com

(Simplify First, *some* Parentheses)

Your goal is to get x by itself.

Get rid of everything except the x.

If possible, "clean up" each side first.

Ask two questions:

1) **What do I want to get rid of?**

2) **How is it held there?**

(Now use opposite operation to get rid of it.)

If held by multiplication, then divide.

If held by division, then multiply.

If held by addition or subtraction,

use opposite sign *of the term you want to get rid of*.

Solve the equation.

$2x - 8 + 9x = 6x - 38$

$11x - 8 = 6x - 38$

$-6x \quad -6x$

$5x - 8 = -38$

$+8 \quad +8$

$\frac{5x}{5} = \frac{-30}{5}$

$x = -6$

$3y - 2(5y - 7) = -9y + 6$

$3y - 10y + 14 = -9y + 6$

$-7y + 14 = -9y + 6$

$+9y \quad +9y$

$2y + 14 = +6$

$-14 \quad -14$

$\frac{2y}{2} = \frac{-8}{2}$

$y = -4$

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$-6k - 7k = -3(4k + 9)$

$-13k = -12k - 27$

$+12k \quad +12k$

$-1k = -27$

$\frac{-1k}{-1} = \frac{-27}{-1}$

$k = 27$

$-13k = -12k - 27$

$+13k \quad +13k$

$0 = 1k - 27$

$+27 \quad +27$

$27 = k$

$8 - 20 = \cancel{10x} + 9 \cancel{- 13x}$

$-12 = -3x + 9$

$-9 \quad -9$

$-21 = -3x$

$\frac{-21}{-3} = \frac{-3x}{-3}$

$7 = x$

$5 - 1(2r - 7) + 3r = 12$

$5 \; -2r + 7 + 3r = 12$

$r + 12 = 12$

$-12 \quad -12$

$r = 0$