

11/13/2014

Good Morning!

Take out your homework.
(page 19.5)

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2-3 Equations with Variables on Both Sides

Examples:

Solve each equation:

a. $7y = 12 + 4y$

$$\begin{array}{r} -7y \\ -12 \\ -4y \\ \hline -12 = -3y \\ 4 = -3y \end{array}$$

b. $6x + 3 = 8x - 21$

$$\begin{array}{r} -2x + 3 = -21 \\ -2x = -24 \\ x = 12 \end{array}$$

Step 1

Step 2

Step 3

Step 1

Step 2

Step 3

both sides
↓sub $7y$ b.s.sub 12 b.s.div b.s. by -3 sub. $8x$ b.s.sub 3 b.s.div by -2 **Check**

$7(4) = 12 + 4(4)$

$$\begin{array}{l} 28 = 12 + 16 \\ 28 = 28 \end{array}$$

$6(12) + 3 = 8(12) - 21$

$$\begin{array}{l} 72 + 3 = 96 - 21 \\ 75 = 75 \end{array}$$

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Variables on Both Sides Word Problems

Examples:

Translate to an algebraic equation and solve:

- a. Two less than six times a number is the same as thirteen more than a number. Find the number.

$$\begin{array}{rcl}
 6x - 2 & = & 13 + x \\
 \hline
 5x & = & 15 \\
 x & = & 3
 \end{array}$$

$$\begin{array}{l}
 6(3) - 2 = 13 + 3 \\
 18 - 2 = 13 + 3 \\
 16 = 16
 \end{array}$$

- b. Three less than four times a number is the same as three times a number increased by four. Find the number.

$$\begin{array}{rcl}
 4x - 3 & = & 3x + 4 \\
 \hline
 x & = & 7
 \end{array}$$

$$\begin{array}{l}
 4(7) - 3 = 3(7) + 4 \\
 28 - 3 = 21 + 4 \\
 25 = 25
 \end{array}$$

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2-5 Solving Multi-Step Equations

Examples:

Solve each equation:

a. $3(5x - 4) = 8x + 2$

$15x - 12 = 8x + 2$

$7x - 12 = 2$

$7x = 14$

$x = 2$

Step 1 distribute 3

Step 2 sub $8x$ b.s.

add 12 b.s.

Step 3 div 7

b. $2(9x - 1) = 99 - 7(3 - 4x)$

$18x - 2 = 99 - 21 + 28x$

$18x - 2 = 78 + 28x$

$-80 = 10x$

$-8 = x$

Step 1 distribute 2

Step 2 distribute -7

Step 3 combine like terms

sub. $18x$ b.s.Step 4 sub. 78 b.s.

div. b.s. by 10

Check