

a.  $2x + 11 - 6(x - 8) - 3x + 21 = 46$

$$\textcircled{2x} + \textcircled{11} - \textcircled{6x} + \textcircled{48} - \textcircled{3x} + \textcircled{21} = 46$$

$$-7x + 80 = 46$$

$$\begin{array}{r} -80 \\ -80 \\ \hline -7x = -34 \\ \hline x = \frac{34}{7} \end{array}$$

b.  $\frac{2}{13}(\textcircled{6m} - \textcircled{21}) + 29 = -42$

$$4m - 14 + 29 = -42$$

$$4m + 15 = -42$$

$$\begin{array}{r} -15 \\ -15 \\ \hline 4m = -57 \\ \hline m = -\frac{57}{4} \end{array}$$

2.) Simplify the following expressions.

a.  $\frac{3}{7} \cdot 18 \left( \frac{5}{9} - \frac{5}{6}R \right)$

$$10 - 15R$$

b.  $\frac{5}{16} + \frac{9}{12} - \frac{13}{8}$

$$\frac{5 \cdot 3}{16 \cdot 3} + \frac{9 \cdot 4}{12 \cdot 4} - \frac{13 \cdot 6}{8 \cdot 6} = -\frac{56}{25}$$

$$\frac{15}{48} + \frac{36}{48} - \frac{78}{48} = -\frac{27}{48} = -\frac{9}{16}$$

1.) The perimeter of a rectangle is 54 inches. The width is five more than the length. Draw and label a rectangle using this information. Write and solve an equation to find the width and length of the rectangle.

Width =  $w = 5 + l = 16$

Length =  $l = 11$

$P = 2l + 2w$

$2(l + 5) + 2l$

$2l + 10 + 2l$

Diagram of a rectangle with length  $l$  and width  $5 + l$ . The perimeter is labeled as  $4l + 10 = 54$ ,  $4l = 44$ , and  $l = 11$ .

Sect. 2-4

Equations with variables on Both Sides of the equal sign:

- Simplify each side first. Use Distributive Property if necessary.
- Move all the variables to one side of the equation.
- Solve.

Solve.

1.)  $11c - 36 = 4c$

$-11c \quad -11c$

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$-36 = -7c$

$\div 7 \quad \div 7$

$c = 36/7$

$5.14$

$11c - 36 = 4c$

$7c - 36 = 0$

$7c = 36$

$c = \frac{36}{7}$

2.)  $3k - 2(2k + 7) = -5k - 19$

$3k - 4k - 14 = -5k - 19$

$-k - 14 = -5k - 19$

$+5k \quad +5k$

$4k - 14 = -19$

$4k = -5$

$k = -5/4$

$k = -1.25$

3.)  $9x - 3(2x + 6) + 19 = 2x + 5 + x - 4$

$$9x - 6x - 18 + 19 = 2x + 5 + x - 4$$

$$3x + 1 = 3x + 1$$

$$-3x \quad -3x$$

$$1 = 1$$

4.) Write an equation and solve it in order to find the value of x.

~~$108^\circ = 4(2x + 3)^\circ$~~

~~$(3x + 72)^\circ$~~

~~$108^\circ$~~

$$4(2x + 3) = 3x + 72$$

$$8x + 12 = 3x + 72$$

$$5x + 12 = 72$$

$$5x = 60$$

$$x = 12$$

$$9x - 3(2x + 6) + 19 = 2x + 5 + x - 4$$

This equation is called an **IDENTITY**:

both sides are identical after you simplify.

$$3x + 1 = 3x + 1$$

$1 = 1$  This is a True statement

No matter what you substitute for x the two sides will be identical.

We say that there are an **Infinite** number of solutions or that the solution is **All Real Numbers**.

5.)  $10 + 3(R - 5) + 2R = 4R - 1 + R - 3$

$$10 + 3R - 15 + 2R = 4R - 1 + R - 3$$

$$5R - 5 = 5R - 4$$

No sol.  $-5 \neq -4$

False

$$10 + 3(R - 5) + 2R = 4R - 1 + R - 3$$

When you simplify both sides your are left with:

$$5R - 5 = 5R - 4$$

$$-5 = -4 \quad \text{this is a FALSE statement.}$$

No matter what you substitute for x the two sides will NEVER be identical!

This equation will NEVER be true so we say there is **NO SOLUTION** to this equation.

When all the variables cancel out in an equation:

It means that it doesn't matter what you substitute for the variable the equation is either going to **ALWAYS be true** or **ALWAYS be false**.

No Solution

Solution is  
All Real #'s

6.) Solve.

$$3Q - 19 + Q = 2Q + 11 - 8Q - 32$$

$$4Q - 19 = -6Q - 21$$

$$4Q + 2 = -6Q$$

$$7Q = -10$$

$$Q = -\frac{10}{7}$$

$$Q = -0.2$$

You can now finish Hwk #13

Sec 2-4

Pages 98-99

Problems 1, 2, 13-16, 22, 23, 28, 29

Due Thursday

IXLs: J.5 & J.6 - due Friday, Sept. 27th!