1. When the baker turned off the oven the temperature was $400°F$. The oven cooled off $14°F$ per minute. After a while the temperature in the oven was $85°F$. Write and solve an equation to find the number of minutes it took to cool from $400°F$ to $85°F$.

m = # min

minutes = 22.5 min

$400 - 14m = 85$

$-400 \quad -400$

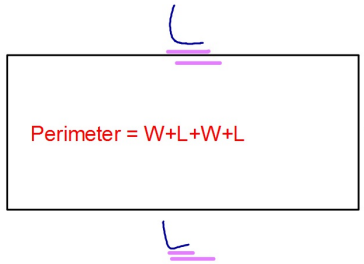
$\frac{-14m}{-14} = \frac{-315}{-14}$

$m = 22.5$

2. 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 = 16 ← L+5 = 11+5

Length = 11



L+5 = w

w = L+5

54 = L+5 +L +L+5 +L

54 = 4L +10

11 = L

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.

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

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

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

$+5k \quad +5k$

$4k - 14 = -19$

$+14 \quad +14$

$\frac{4k}{4} = \frac{-5}{4}$

$k = -\frac{5}{4}$

Solve.

$11c - 36 = 4c$ OR $11c - 36 = 4c$

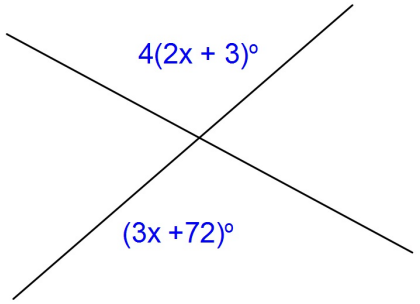
$-11c \quad -11c$ $\quad$ $-4c \quad -4c$

$\frac{-36}{-7} = \frac{-7c}{-7}$ $\quad$ $7c - 36 = 0$

$+36 \quad +36$

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

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



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

Vertical $\angle$s are =

set the two expressions equal to each other

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

$8x + 12 = 3x + 72$

$-3x \quad -3x$

$5x + 12 = 72$

$-12 \quad -12$

$\frac{5x}{5} = \frac{60}{5}$

x = 12

Do a Boolean Check on the following equation. Use your seat number as the potential solution.

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

Is your seat number a solution?

Everybody's seat number IS a solution

Simplify both sides

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

$9x - 6x - 18 + 19$

$3x + 1 = 3x + 1$

$-3x \quad -3x$

$1 = 1$

this is a true statement which means it will ALWAYS be true:

Solution is ALL REAL NUMBERS

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

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.

Do a Boolean Check with this equation using your seat number.

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

Is your seat number a solution?

Nobody's seat number is a solution to this equation.

Simplify both sides:

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

$10 + 3R - 15 + 2R$

$5R - 5 = 5R - 4$

$-5R \quad -5R$

$-5 = -4$

this is not true so it will never be true: NO SOLUTION

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

When you simplify both sides your are left with:

5R - 5 = 5R - 4

-5 = -4 this is a FALSE statement.

No matter what you subtitute 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.