

Solve: Algebraically
proportions

$$\frac{5}{x} = \frac{15}{20}$$

$$\frac{15x}{15} = \frac{100}{15}$$

$$x = 6\frac{2}{3}$$

$$\frac{1}{3}(4x-7) = \frac{2}{3}(2x+1)$$

$$\frac{4}{3}x - \frac{7}{3} = \frac{4}{3}x + \frac{2}{3}$$

$$-\frac{7}{3} \neq \frac{2}{3}$$

no

solution

proportions

$$\frac{x+6}{2} = \frac{x-3}{4}$$

$$2(x-3) = 4(x+6)$$

$$2x-6 = 4x+24$$

$$-2x \quad -2x$$

$$-6 = 2x+24$$

$$-24 \quad -24$$

$$\frac{-30}{2} = \frac{2x}{2}$$

key word = for inequality word problems

$<$	$>$	\leq	\geq
-less than	-greater than	-less than or equal to	-greater than or equal to
-fewer than	-more than	-fewer than or the same as	-minimum
-smaller than	-bigger than	-maximum	-at least
	-larger than	-at most	-no fewer than
		-no greater than	-no smaller than
		-no more than	-no less than
		-no larger than	

Always put your total on the right + variable on the left

Write an inequality that represents each situation.

A bus can seat at most 48 students.

$$x \leq 48$$

In many states, you must be at least 16 years old to obtain a driver's license.

$$x \geq 16$$

The Navy's flying squad, the Blue Angles, makes more than 75 appearances each year.

$$y > 75$$

Your brother has \$2000 saved for a vacation. His airplane ticket is \$637. Write and solve an inequality to find how much he can spend for everything else.

$$\begin{array}{r} 637 + x \leq 2000 \\ -637 \quad -637 \\ \hline x \leq 1363 \end{array}$$

$$x \leq 1363$$

The science club charges \$4.50 per car at their car wash. Write an inequality to find how many cars they have to wash to earn at least \$300.

$$4.5x \geq 300$$

The sophomore class is planning a picnic. The cost of a permit to use a city park is \$250. To pay for the permit, there is a fee of \$.75 for each sophomore and \$1.25 for each guest who is not a sophomore. Two hundred sophomores plan to attend. Write an inequality to find how many guests must attend for the sophomores to pay for the permit.

$$.75(200) + 1.25x \geq 250$$