Click to verify

We use inequality as a sentence using symbol other than the sign = (equals). The symbols >, , >, and are most common inequality. For solving inequality sentences, you will follow the same method that you would use if it were an equation with the following exception. The direction of the inequality will change, if you multiply or divide both side with a -ve value. Then, we will this variation a negative multiplication property of inequality. If a, b, and c are real numbers and c has -ve value, the conditions of variables will be a < b, then, ac > bc or if a > b, then the variables ac < bc. Example : Solve for x: 3 x - 7 > 20. Step 1: 3x -7 > 20 -> (1) Step 2: 3x > 27 Step 3: x > 9. To verify the solution, you will observe either x = 9 making the equation (1) true or not. Even though 9 is not a solution, it is a crucial value or point of division that is vital to explore the solution. 3x - 7 = 20 Step 1: 3(9) - 7 = 20 Step 2: 27 - 7 = 20. Then, we will select the value greater than 9 to 10. Observe whether it makes the actual inequality true or not. 3x - 7 > 20 Step 1: 3(10) - 7 > 20 Step 2: 30 - 7 > 20 Step 3: 23 > 20. It is true sentence. It is difficult to write all greater than 9 numbers together so we will use set builder notation. { x| x > 9 } These worksheets explain how to balance equations that contain linear inequalities. We suggest that you have colored pencils handy to help shade the graphs. Linear inequalities are expressions in which two linear expressions are compared using the inequality symbols. In this step-by-step guide, you will learn about solving systems of linear inequalities. The solution to a system of a linear inequality is the region where the graphs of all linear inequalities in the system overlap. How to Solve Linear Inequalities How to Solve Quadratic Inequalities The system of linear inequalities is a set of equations of linear inequality containing the same variables. Several methods of solving systems of linear equations translate to the system of linear inequalities. However, solving a system of linear inequalities is somewhat different from linear equations because the signs of inequality prevent us from solving by the substitution or elimination method. Perhaps the best way to solve systems of linear inequalities is by graphing the inequalities. To solve a system of inequalities, graph each linear inequality in the system on the same $(x-y)$ axis by following the steps below: Solve the inequality for (y). Treat the inequality as a linear equation and graph the line as either a solid line or a dashed line depending on the inequality sign. If the inequality sign does not contain an equals sign $(< or >)$ then draw the line as a dashed line. If the inequality sign does have an equals sign $((or))$ then draw the line as a solid line. Shade the region that satisfies the inequality. Repeat steps $(1 3)$ for each inequality. The solution set will be the overlapped region of all the inequalities. Solve the following system of inequalities. $$\begin{cases}x\:-\:5y\ge\:6\\ \:3x\:+\:2y>1\end{cases}$$ Solution: First, isolate the variable (y) to the left in each inequality: $(x -5y 6)$ $(x6 + 5y)$ $(5y x- 6)$ $(y0.2 x -1.2)$ And: $(3x+ 2y> 1)$ $(2y>1-3x)$ $(y> 0.5-1.5x)$ Now, graph $(y 0.2x-1.2)$ and $(y > 0.5 -1.5x)$ using a solid line and a broken one, respectively. The solution of the system of inequality is the darker shaded area which is the overlap of the two individual solution regions. $\color{blue} {\begin{cases}5x-2y\le 10 \\ \:3x+2y>\:6\end{cases} }$ $\color{blue} {\begin{cases}-2x-y\:6\end{cases} }$ $\color{blue} {\begin{cases}-2x-y$