

MATH SKILL INFORMATION PAGE

Pre-Algebra, Algebra

GRAPHING SYSTEMS OF EQUATIONS AND INEQUALITIES

SOLVE A SYSTEM OF EQUATIONS. You have two equations. Do this:

1. **Graph one equation**, by doing this:
 - a. Solve one equation for y .
 - b. Use b to put one point on the graph.
 - c. Use m (rise over run) to put a second point on the graph. Remember that a negative means go the down or go left.
 - d. Draw a line through the points, through the whole graph.
 - e. Don't forget arrows.
2. **Graph the second equation**—repeat the steps for the second equation.
3. Now **look at where both equations meet**. That point is the “solution” to the system of equations.
4. Put that solution in **(x, y) form**. That is the only correct answer, not $x =$ and $y =$.

GRAPH AN INEQUALITY.

1. **Solve for y** . *Don't forget that if you multiply or divide by a negative, you reverse the inequality sign. Otherwise, you do the exact same steps to solve for y that you do with an equation.*
2. **Graph the line** in the same way that you do an equation: use b , then m .
3. Make sure to check if you draw a **solid or a dash line**.
4. Put arrows.
5. NOW: decide if you **shade above or below the line**. Do this:
 - a. **Pick a point**. If $(0,0)$ is not actually on the line, then use $(0,0)$. However, you can choose any point you want—just make sure it's not on the line.
 - b. **Put that point into the inequality, and see if it's true or false**. For instance:
 - i. $y < 3x - 5$. We'll use the point $(2, 4)$.
 - ii. $4 < 3(2) - 5$. This becomes $4 < 6 - 5$, which becomes $4 < 1$.
 - iii. That's not true.
 - c. If it's not true, then shade the side of the line that does NOT include that point.
 - d. If it's true, shade the side of the line that DOES include the point.
 - e. You're welcome to check by doing points on both sides of the line. If both come out true, or both come out false, you made an error doing one or the other; go back and check every step you did.

GRAPH A SYSTEM OF TWO INEQUALITIES.

1. **Graph one inequality** just as explained above. Do the shading, but lightly, or with lines.
2. **Graph the other inequality** just as explained above. Do the shading, but lightly, or with lines that are different from the lines you used for the first inequality's shading.
3. **Look at where the shadings overlap**. That area, where both inequalities are shaded at the same time, is your “solution.” Make sure you shade that solution area darker than the rest, because that's how you (and the teacher when grading a test) knows your solution.