



Math Study Strategies

If given a linear equation that is an **inequality**, follow the steps below:

Temporarily treat the inequality sign ($<$, $>$, \leq , \geq) as an equal sign.

For example, if the equation is $y > 2x + 3$, treat it as $y = 2x + 3$.

Then use the guidelines on the previous page to graph the line.

If the inequality is $<$ or $>$, the line will be **dashed**.

If the inequality is \leq or \geq , the line will be **solid**.

Next, select any point on either side of the line but **not** on the line. Plug the coordinates of this test point into the equation to see if the inequality holds true.

If the inequality is true, shade the side of the line **containing** that point.

If the inequality is false, shade the side of the line **opposite** that point.

Examples

Problem

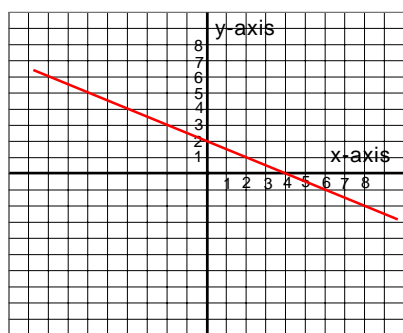
Graph the equation $2x + 4y = 8$

Solution

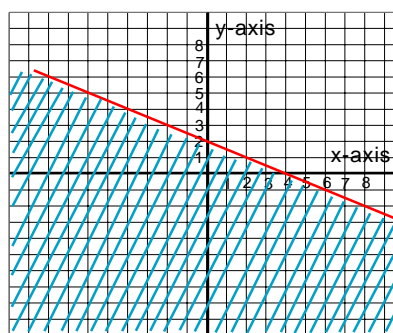
Substitute "0" for x. $2(0) + 4y = 8$ $4y = 8$ $y = 2$ Point: (0,2)

Substitute "0" for y. $2x + 3(0) = 8$ $2x = 8$ $x = 4$ Point: (4,0)

Plot the two points on the graph and connect them with a line



(For example above)



(For example below)

Problem

Graph the inequality $2x + 4y \leq 8$

Solution

By temporarily treating this equation as $2x + 4y = 8$, we can now graph it (see the example above). Because the inequality is " \leq " the line will be solid.

Substitute a point in the inequality. (0,0) will be used in this case. Does the inequality $2(0) + 4(0) \leq 8$ hold true? $0 \leq 8$ yes. Therefore, the side **containing** the point (0,0) will be shaded.

