

TOPIC: SYSTEMS OF LINEAR INEQUALITIES

Graphing Systems of Linear Inequalities

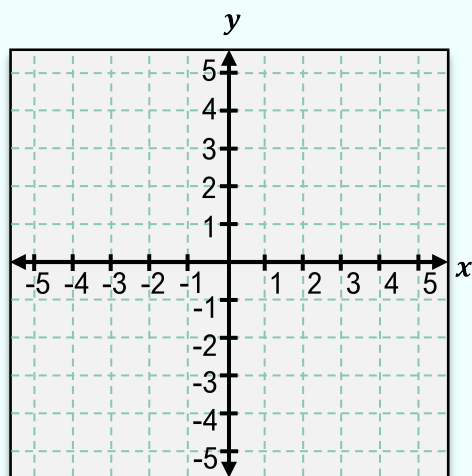
◆ To graph **Systems of Linear Ineqs**, plot ALL lines & shade _____ region that makes _____ ineqs true.

EXAMPLE

Graph the system of inequalities.

$$y \leq -x + 4$$

$$y > 2x + 1$$



HOW TO: Graph Systems of Linear Inequalities

For each inequality: (use different colors or shading styles)

- 1) Graph solid/dashed line by replacing inequality with an $=$ sign
- 2) Test a point on one side of line by plugging (x, y) into inequality
(Best to use $(0, 0)$ or a point on x or y axis)
- 3) If point makes ineq. **TRUE**, *lightly* shade side **WITH** that point
If point makes ineq. **FALSE**, *lightly* shade side **WITHOUT** that point

Finally,

- 4) Shade the overlap of all regions (if no overlap, NO solution)

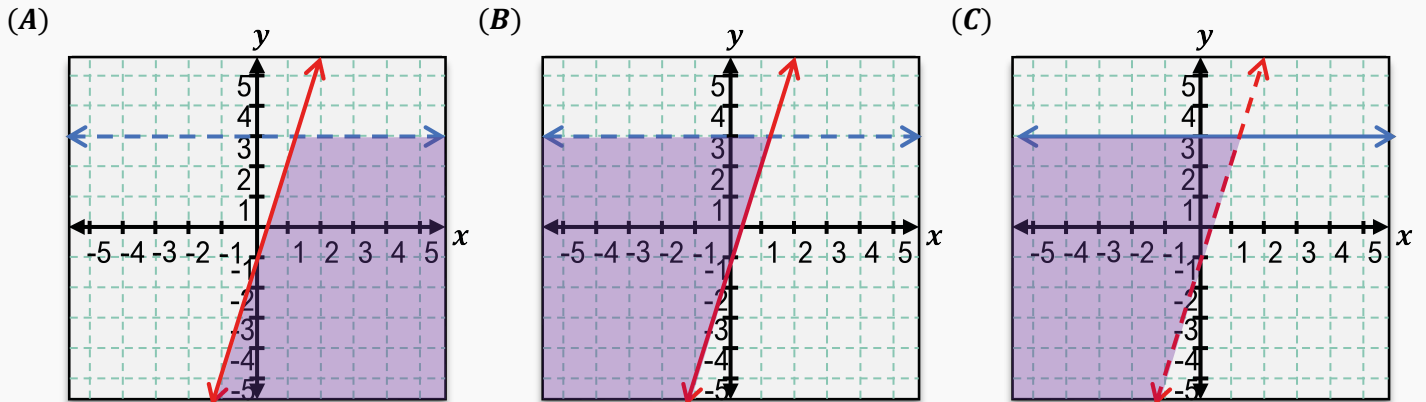
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PRACTICE

Which of the following graphs accurately represents the solution to the system of inequalities?

$$y \geq 3x - 1$$

$$y < 3$$

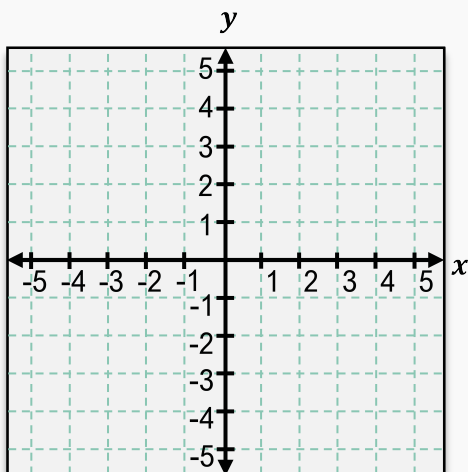


PRACTICE

Graph the system of inequalities and indicate the region (if any) of solutions satisfying all equations.

$$y \leq 2x - 2$$

$$y > 3 - x$$



HOW TO: Graph Systems of Linear Inequalities

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(Best to use $(0, 0)$ or a point on x or y axis)
- 3) If point makes ineq. **TRUE**, *lightly* shade side **WITH** that point
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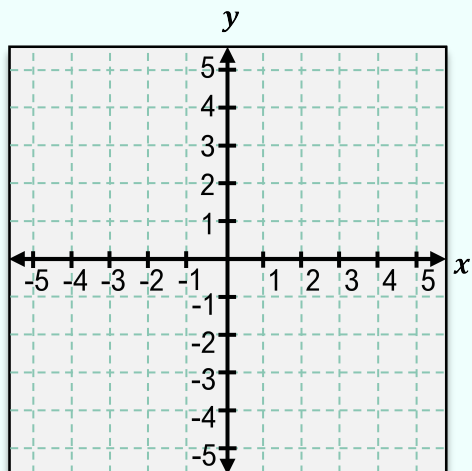
EXAMPLE

Graph the system of inequalities and indicate the region (if any) of solutions satisfying all equations.

$$x - y \geq 2$$

$$y \geq 1$$

$$x < 0$$



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