TOPIC: SYSTEMS OF LINEAR INEQUALITIES

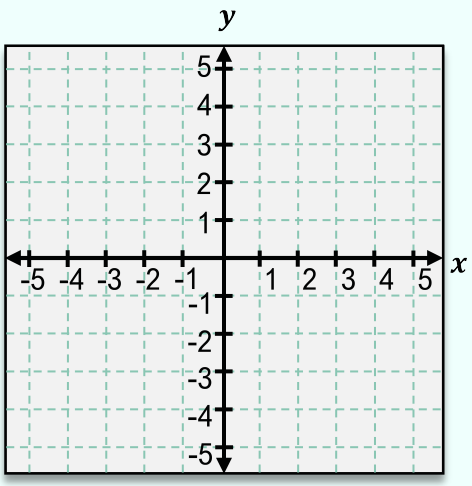
Graphing Systems of Linear Inequalities

◆ 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 ____ 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,

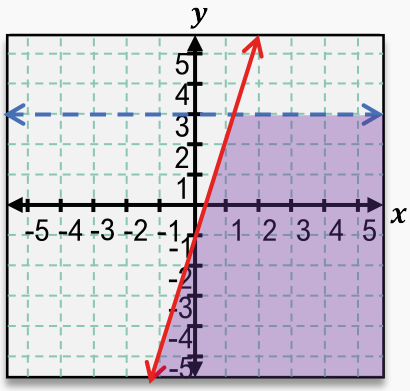
4) Shade the overlap of all regions (if no overlap, NO solution)

TOPIC: SYSTEMS OF LINEAR INEQUALITIES

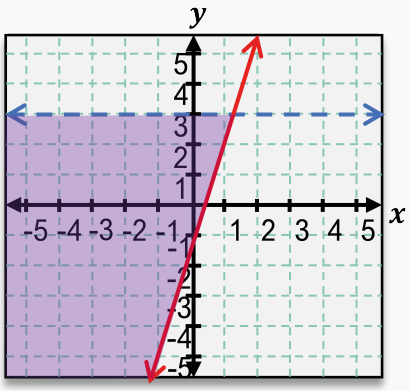
PRACTICE Which of the following graphs accurately represents the solution to the system of inequalities?

$$y \geq 3x - 1$$
$$y < 3$$

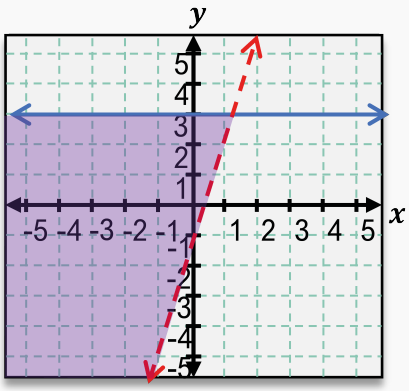
(A)



(B)

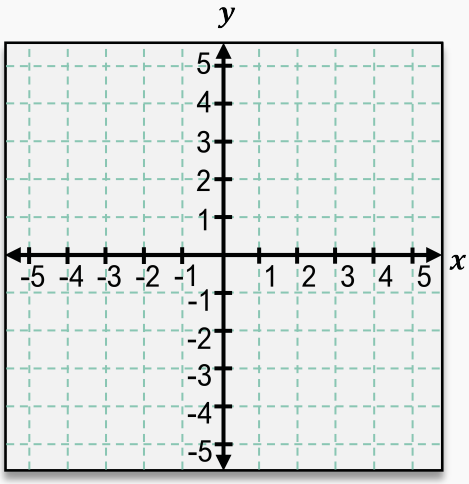


(C)



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

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)

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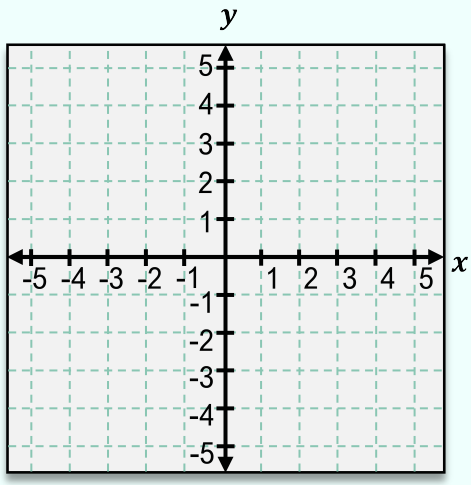
EXAMPLE Graph the system of inequalities and indicate the region (if any) of solutions satisfying all equations.

$x - y \geq 2$

$y \geq 1$

$x < 0$



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