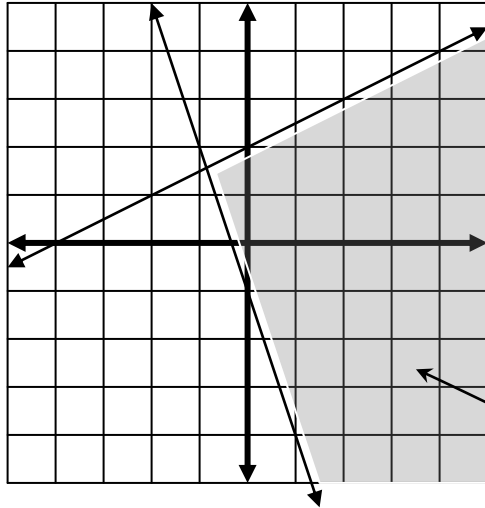# SOLVING SYSTEMS OF INEQUALITIES BY GRAPHING

Given the graphs of the two lines: $y = -3x - 1$ and $y = \frac{1}{2}x + 2$ as shown on the x/y-axis below,

where do you believe the solution to the system

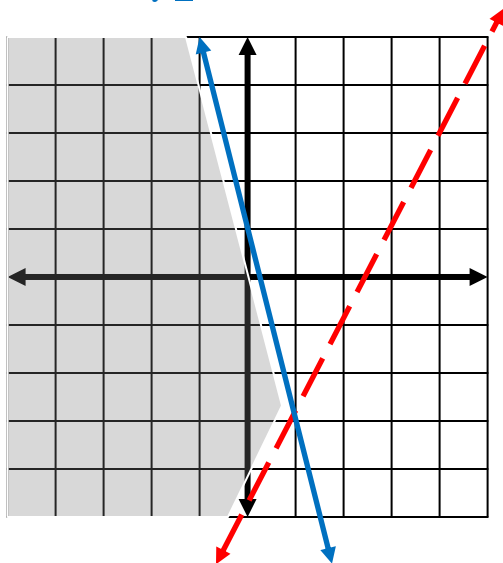$$y \geq -3x - 1$$
$$\&$$
$$y < \frac{1}{2}x + 2$$

belongs on the graph, and how do you represent it?

WHAT WAS ***INCORRECT*** ON THE GRAPH WE JUST FINISHED? DID YOU CATCH IT??
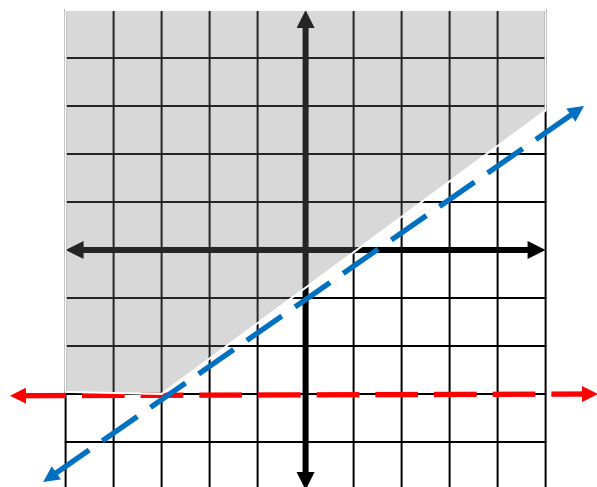
The line for $y < \frac{1}{2}x + 2$

should be dashed.

Graph each of the following systems of inequalities…volunteers????

1) $y > 2x - 5$
          $y \leq 1 - 4x$
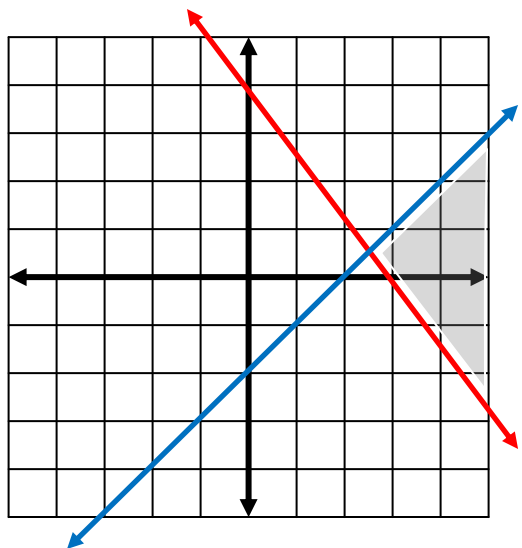
2) $y > -3$
          $y > \frac{2}{3}x - 1$
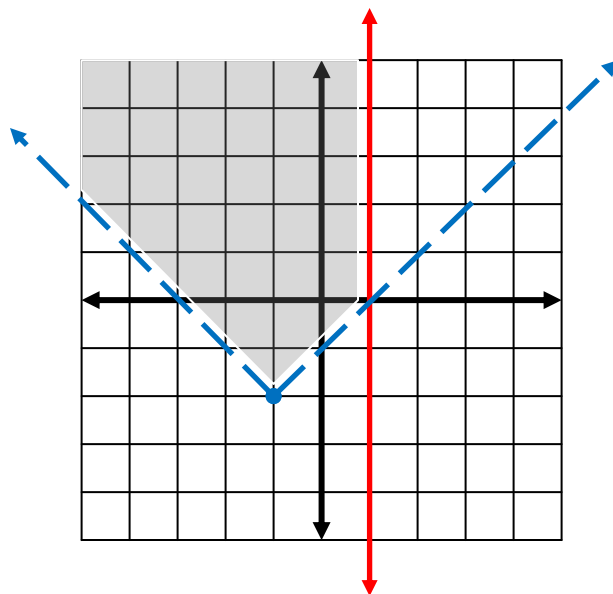
3) $3y + 4x \geq 12$
              $x - y \geq 2$

$3y + 4x \geq 12$ $x - y \geq 2$
$3y \geq -4x + 12$ $-y \geq 2 - x$
$y \geq -\dfrac{4}{3}x + 4$ $y \leq x - 2$

4) $x \leq 1$
              $y > |x + 1| - 2$

BONUS ROUND: $y \leq \dfrac{1}{3}x$

$$y < -\dfrac{4}{3}x + 1$$

$$y \geq -2$$