

3-1 and 3-3 Graphing Systems

Name \_\_\_\_\_

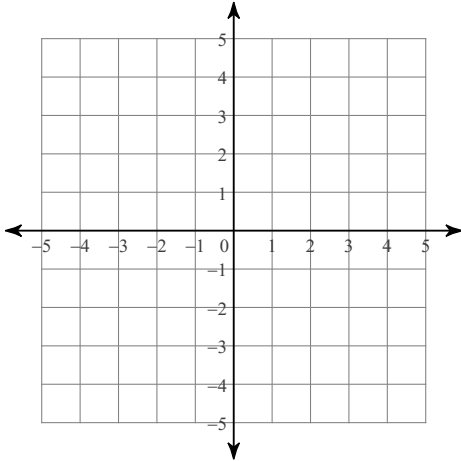
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**Sketch the solution to each system of inequalities.**

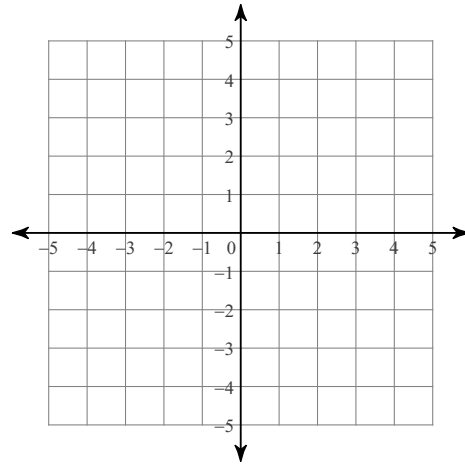
> Pay attention to solid and dotted lines.

> The solution is the area shaded by BOTH inequalities.

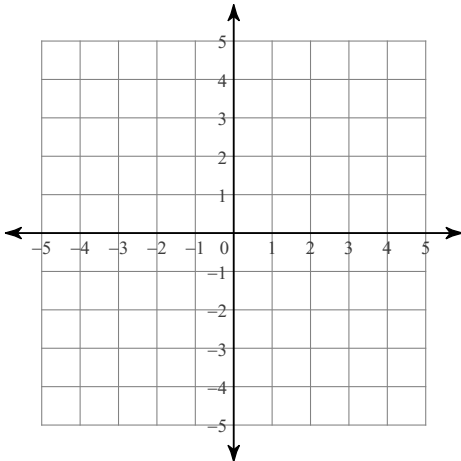
1)  $y < x - 2$   
 $y < 5x + 2$



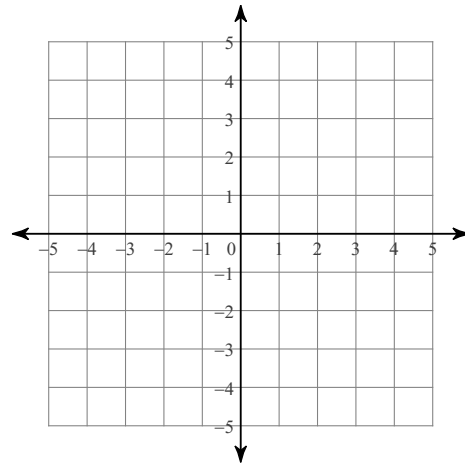
2)  $y \geq -\frac{1}{2}x - 2$   
 $y > 2x + 3$



3)  $y > -\frac{3}{2}x + 2$   
 $y \leq x - 3$

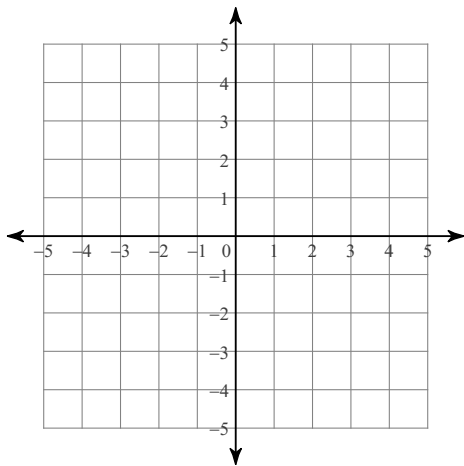


4)  $y \leq 2$   
 $y > 2x - 2$



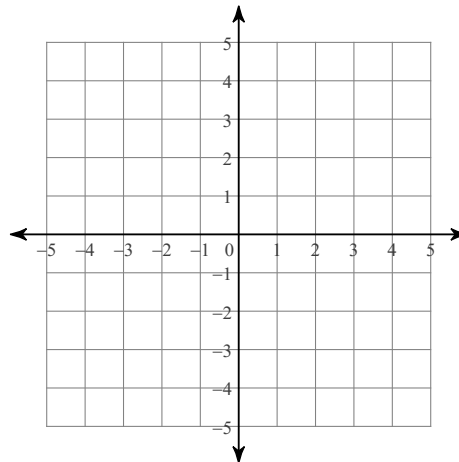
$$5) y \leq -2x - 2$$

$$y \leq \frac{1}{2}x + 3$$



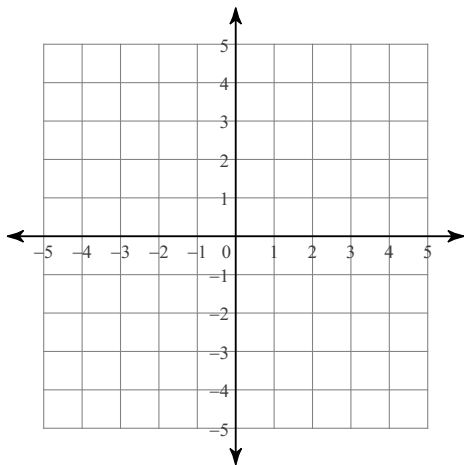
$$6) y > \frac{3}{2}x + 1$$

$$y \leq -\frac{1}{2}x - 3$$



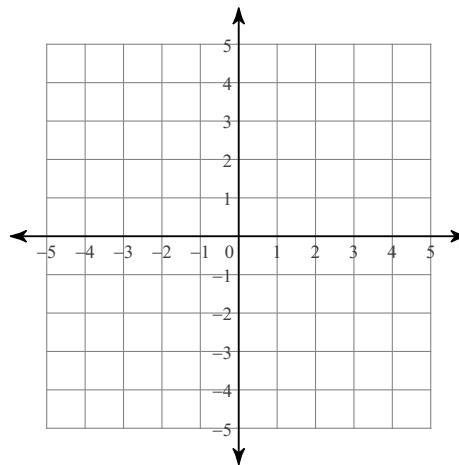
$$7) y > -2x - 3$$

$$y < 2x + 1$$



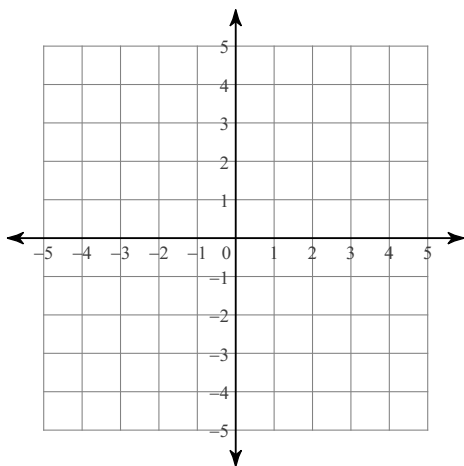
$$8) y \geq -x + 2$$

$$y < -5x - 2$$



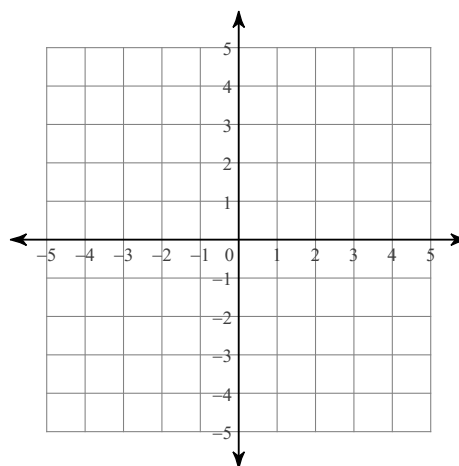
$$9) y \geq -2x + 3$$

$$y < 2x - 1$$



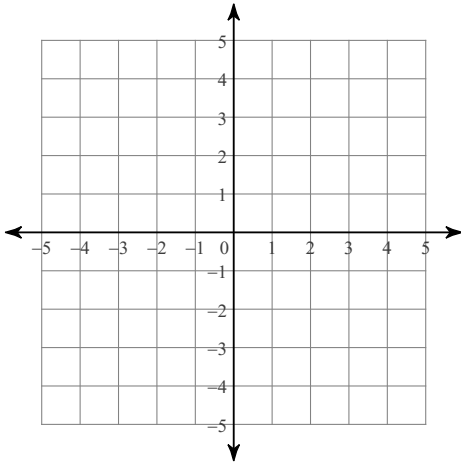
$$10) y \geq \frac{1}{3}x - 2$$

$$y > \frac{4}{3}x + 1$$



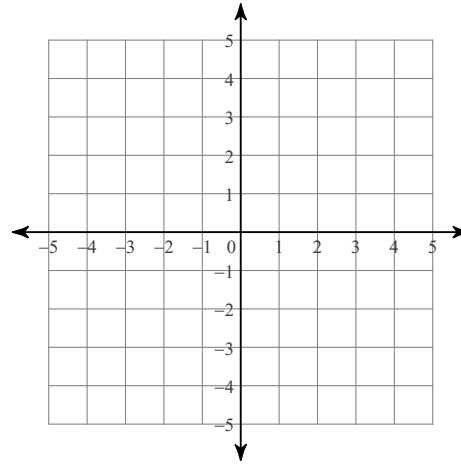
$$11) y \leq -\frac{1}{2}x - 3$$

$$y > \frac{5}{2}x + 3$$



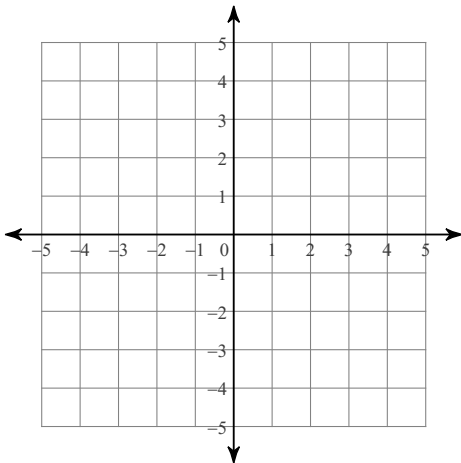
$$12) y < -2x + 3$$

$$y \leq -\frac{1}{3}x - 2$$



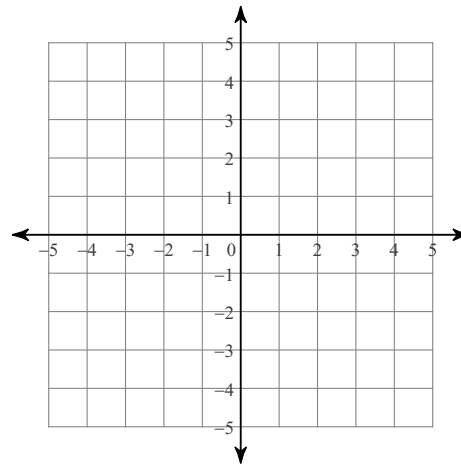
$$13) y \geq -\frac{1}{2}x + 2$$

$$y \geq -3x - 3$$



$$14) y > \frac{5}{2}x + 3$$

$$y > -\frac{1}{2}x - 3$$



How many solutions does each system have?

Put both equations in  $y = mx + b$  form.

> If they are identical, they are the same line with an INFINITE NUMBER OF SOLUTIONS.

> If they only have the same slope, they are parallel, and they have NO SOLUTION.

> If the slopes are not the same, they are not parallel, and they will intersect at ONE SOLUTION.

$$15) 3 + 3x = -y$$

$$-x = 8 - 2y$$

$$16) x - 2y = 8$$

$$x - 2y - 2 = 0$$

$$17) \begin{aligned} 0 &= -y + 2 - 3x \\ 3x - 2 &= -y \end{aligned}$$

$$18) \begin{aligned} 2 - y &= -x \\ 3y + 6 &= -9x \end{aligned}$$

$$19) \begin{aligned} 0 &= -2 - x + y \\ 4 - 7x &= -y \end{aligned}$$

$$20) \begin{aligned} 0 &= -2y - 6 - \frac{8}{3}x \\ 4 - y &= -x \end{aligned}$$

$$21) \begin{aligned} 12y + 9x &= 12 \\ 0 &= -12 + 12y + 9x \end{aligned}$$

$$22) \begin{aligned} 0 &= -3y + 3 + 2x \\ 2x + 9 &= 3y \end{aligned}$$

$$23) \begin{aligned} x - 4 + y &= 0 \\ x &= 1 \end{aligned}$$

$$24) \begin{aligned} 4x + 3 &= -y \\ -3 &= y + 4x \end{aligned}$$