DO NOW

Graph: $y < -\frac{2}{3}x + 1$

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5.4 Solving Systems of Inequalities by Graphing

Graph all inequalities: on the same coordinate plane

***The solution is: the double shaded area

You can identify the coordinates of:

1. a point in the solution
   ↳ in the double shaded area
2. a point not in the solution
   ↳ not in double shaded area
3. a point in the solution of one, but not the other
   ↳ only in one set of shading

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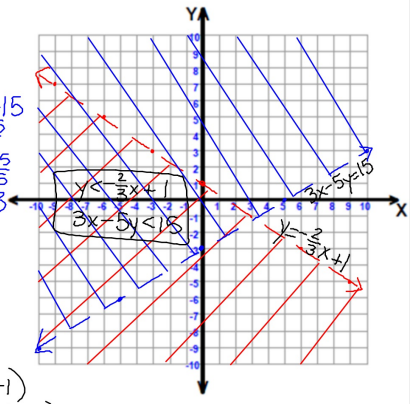
Graph $y < -\frac{2}{3}x + 1$
$3x - 5y < 15$

$y < -\frac{2}{3}x + 1$
$m = \frac{-2}{3}$
$b = 1$
dashed
below

$3x - 5y < 15$
$-5y < -3x + 15$
$y > \frac{-3x+15}{-5}$
$y > \frac{-3x}{-5} + \frac{15}{-5}$
$y > \frac{3}{5}x - 3$
$m = \frac{3}{5}$
$b = -3$
dashed
above



Find the coordinates of a point:

a. in the solution: (0, -1)
b. not in the solution: (0, 3)
c. In the 1st but not the 2nd (0, -4)

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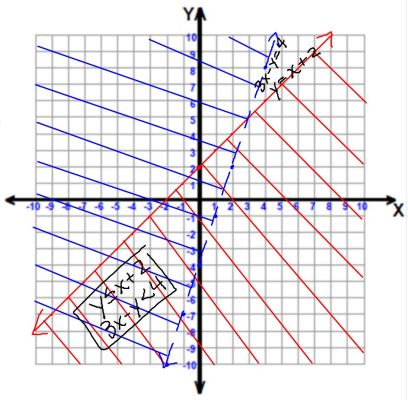
Example: Graph the system

2. $y \le x + 2$
   $3x - y < 4$

$y \le x + 2$
$m = \frac{1}{1}$
$b = 2$
Solid
below

$3x - y < 4$
$-y < -3x + 4$
$y > \frac{-3x+4}{-1}$
$y > 3x - 4$
$m = \frac{3}{1}$
$b = -4$
dashed
above



Find the coordinates of a point not in the solution: (5, 8)

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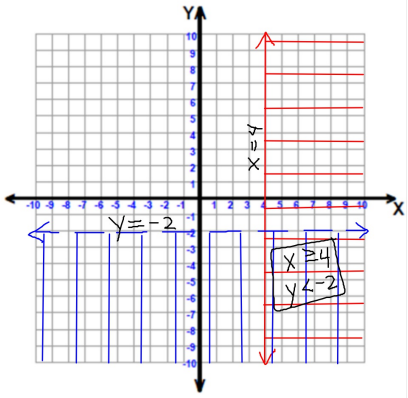
3. $x \ge 4$
   $y < -2$

$x \ge 4$
Vertical
Solid
above

$y < -2$
horizontal
dashed
below



Find the coordinates of a point in the solution:
(5, -5)

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HOMEWORK

Worksheet - HW 5.4

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