3.3 Solving Systems of Inequalities by Graphing

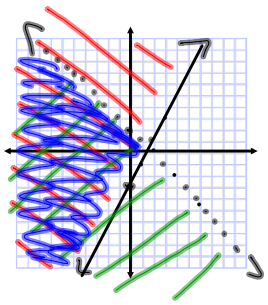
Solve each system by graphing.

1. $y \geq 2x - 3$
   $y < -x + 2$

Test $0 \geq 2(0) - 3$
$0 \geq -3$ True

$m = \frac{-1}{1}$

Test (0,0)
$0 < -0 + 2$
$0 < 2$
True

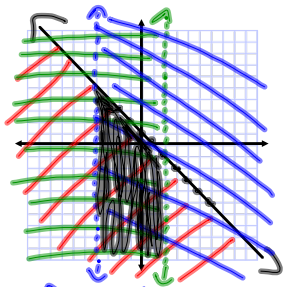


2. $y \leq -x + 1$
   $|x + 1| \leq 3$

$m = \frac{-1}{1}$

And

$x + 1 < 3$ AND $x + 1 > -3$
$x < 2$ AND $x > -4$

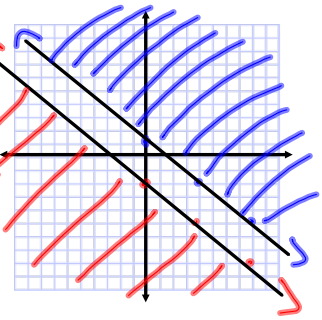


Recall "Absolute Value"
$\leq, <$ And
$\geq, >$ Or

Solve each system by graphing.

3. $y \geq -\frac{3}{4}x + 1$
   $y \leq -\frac{3}{4}x - 2$

No Solution
-No overlap

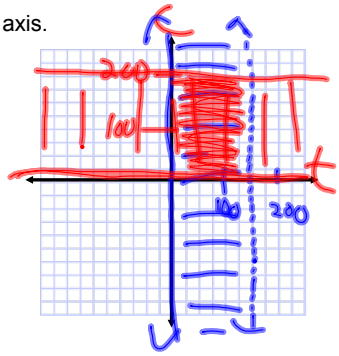


4. Medical professionals recommend that patients have a cholesterol level below 200 milligrams per deciliter(mg/dL) of blood and a triglyceride level below 150 mg/dL.

   Write and graph a system of inequalities that represents the range of cholesterol levels for patients. Let c represent the cholesterol levels and let t represent the triglyceride levels.

   Place t on the horizontal axis and c on the vertical axis.

$0 \leq C < 200$
$0 \leq t < 150$



5. Graph and find the coordinates of the vertices of the figure formed by

$2x - y \geq -1$
$x + y \leq 4$
$x + 4y \geq 4$

$-2x \quad -2x$

$-y \geq -2x - 1$

$y \leq 2x + 1$

$y \leq -x + 4$

$4y \geq -x + 4$

$y \geq -\frac{1}{4}x + 1$

(4, 0)
(1, 3) (0, 1)