Solving a System of Inequalities by Graphing

Name _____

Date _____ Period _____

System of Inequalities

A system of inequalities is a group of inequalities with the same variables.

$3 + 0 < 5$	$x + y < 5$	$2x + y \geq 3$	$2(2) + 2 \geq 3$
$3 - 5(0) > -7$	$x - 5y > -7$	$3x - 2y \leq 8$	$3(2) - 2(2) \leq 8$
✓	(3,0)	(2,2)	✓
	Is a solution	Is a solution	

The solution to a system of inequalities is the set of all ordered pairs (x,y) that satisfies both inequalities

Rules for graphing linear inequalities in slope-intercept form

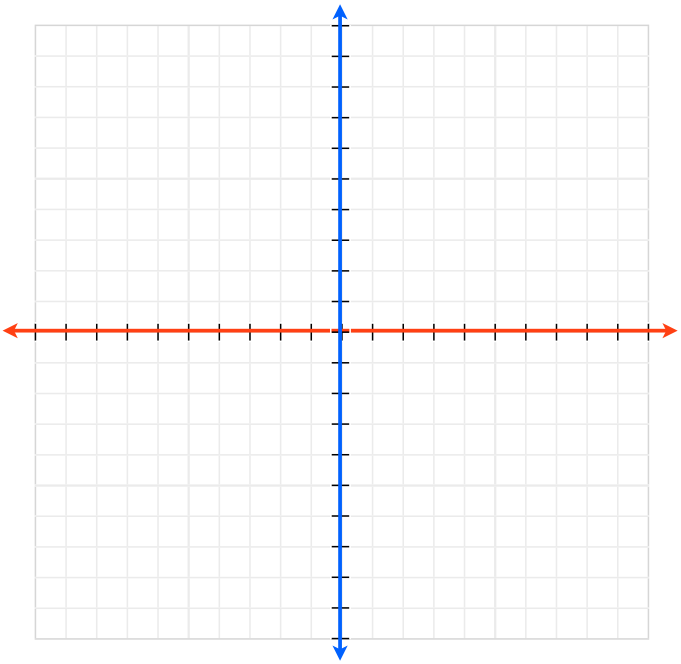
Graph the boundary line $y = mx + b$

Solid line or dotted line	Shade above or below line
$y <$ *or* $y >$ ⇒ dotted line	$y >$ *or* $y \geq$ ⇒ shade above line
$y \leq$ *or* $y \geq$ ⇒ solid line	$y <$ *or* $y \leq$ ⇒ shade below line

The shaded region represents all (x,y) coordinates that will make the inequality a true statement.

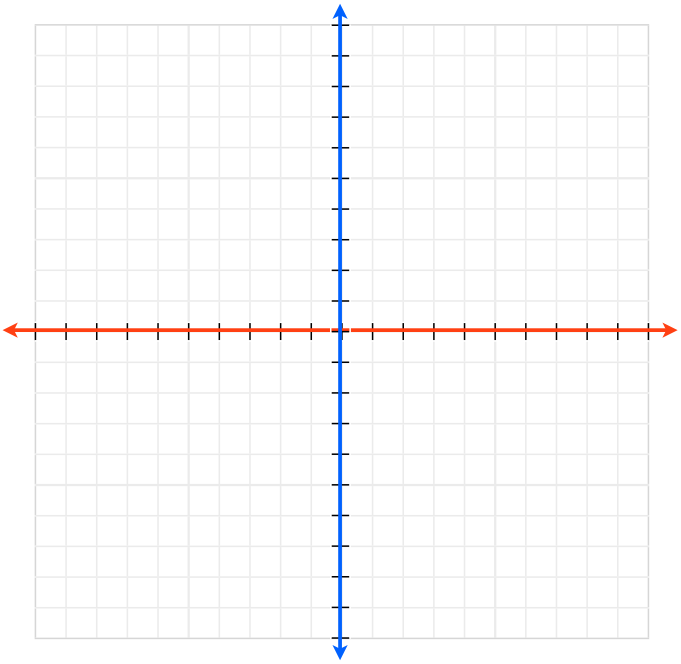
Solve the following system of inequalities

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



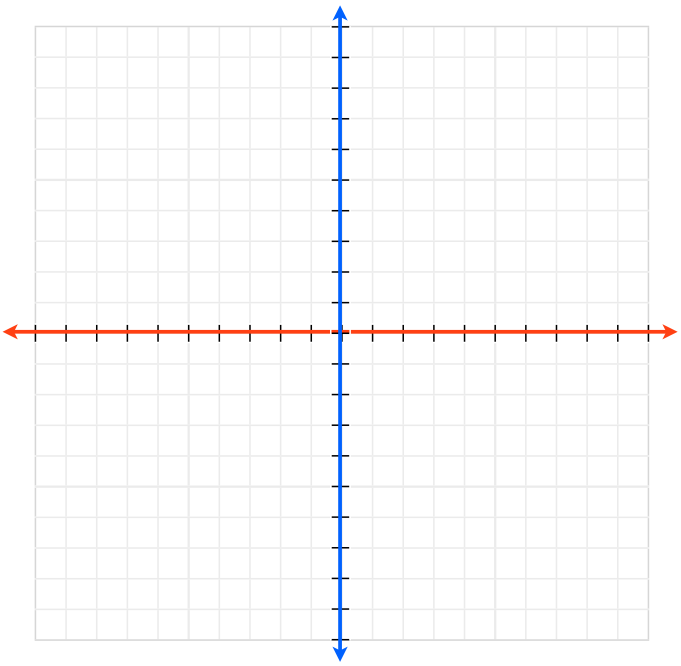
Solve the following system of inequalities

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



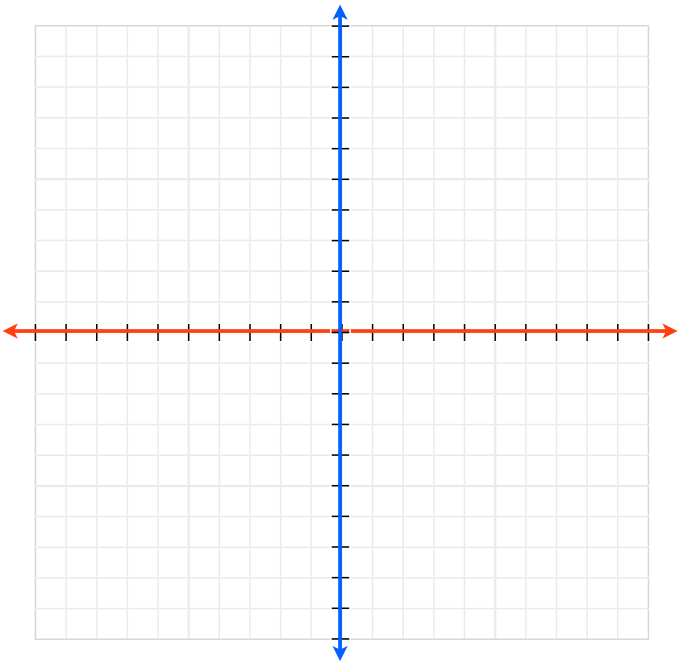
Solve the following system of inequalities

$3x - y < -2$ $\quad\quad$ $x - y > -4$



Solve the following system of inequalities

$y - 3 \geq 3x$ $\quad\quad$ $3x - y \geq 4$



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The shaded region represents all (x,y) coordinates that will make the inequality a true statement.