

shade B	shade S
$> \geq$	$< \leq$

Solid	dashed
$\geq \leq$	$> <$

Solving Systems of Inequalities

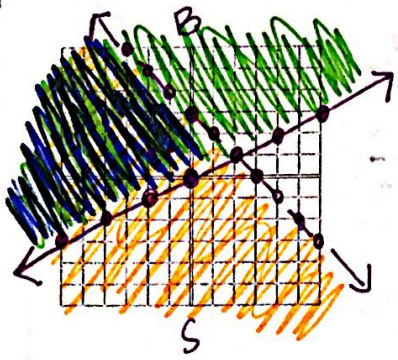
System of linear inequalities: A pair of inequalities graphed on the same coordinate plane.

Solutions of systems of linear inequalities: All points that make both inequalities true at the SAME TIME. [where the 2 shaded regions overlap]

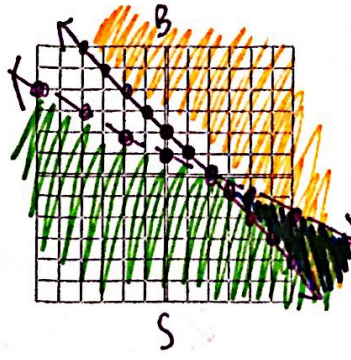


Ex: Solve by graphing.

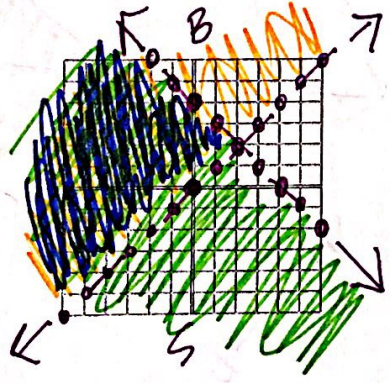
$$\begin{aligned}
 1) & y < -x + 3 \\
 & -2x + 4y \geq 0 \\
 & +2x \quad +2x \\
 & \hline
 & 4y \geq 2x + 0 \\
 & \frac{4y}{4} \geq \frac{2x}{4} + \frac{0}{4} \\
 & y \geq \frac{1}{2}x + 0
 \end{aligned}$$



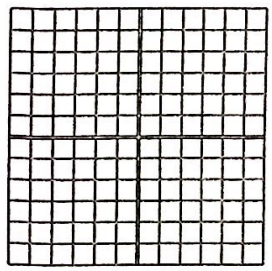
$$\begin{aligned}
 2) & y \geq -x + 2 \\
 & 2x + 4y < 4 \\
 & -2x \quad -2x \\
 & \hline
 & 4y < -2x + 4 \\
 & \frac{4y}{4} < \frac{-2x}{4} + \frac{4}{4} \\
 & y < -\frac{1}{2}x + 1
 \end{aligned}$$



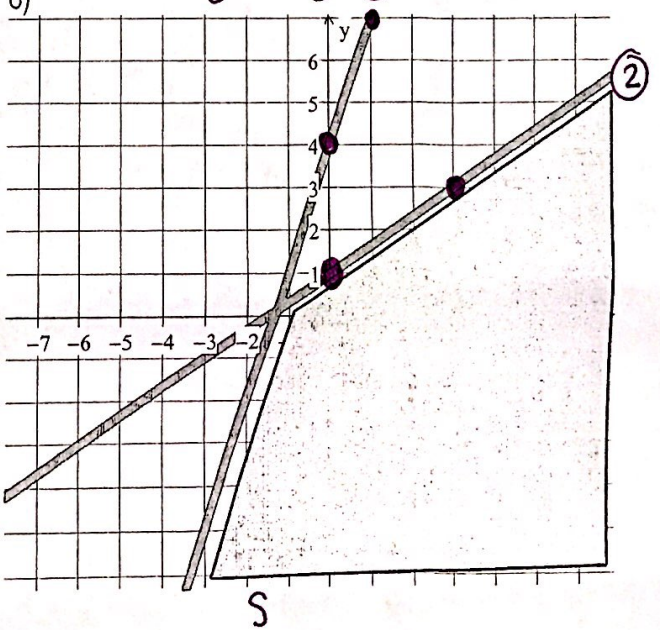
$$\begin{aligned}
 3) & y > x + 0 \\
 & y < -x + 4
 \end{aligned}$$



$$\begin{aligned}
 4) & y \geq x + 4 \\
 & y < 2
 \end{aligned}$$



$$\begin{aligned}
 ① & y \leq 3x + 4 \\
 ② & y \leq \frac{2}{3}x + 1
 \end{aligned}$$



Ex: Write an equation for the graph.

