Non Linear Systems of Equations and Inequalities Review Guide

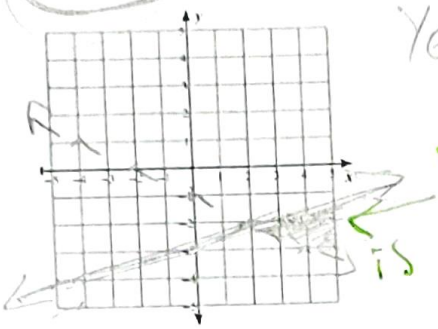
Solve by graphing

0:00:00

$y \geq -\frac{1}{2}x - 1$

$y \leq \frac{1}{4}x - 3$

(4,-2) a solution? Yes



Overlapping shaded region is Solution to System

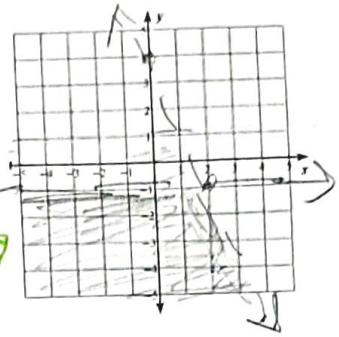
Solve by graphing

0:00:34

$y < -1$

$y < -\frac{5}{2}x + 4$

(4,-2)? No



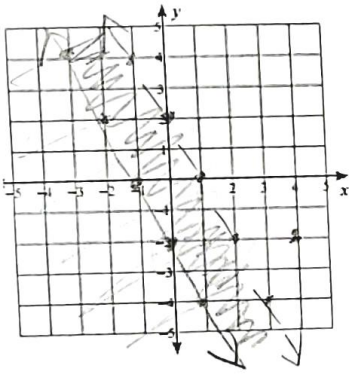
Solve by graphing

0:00:34

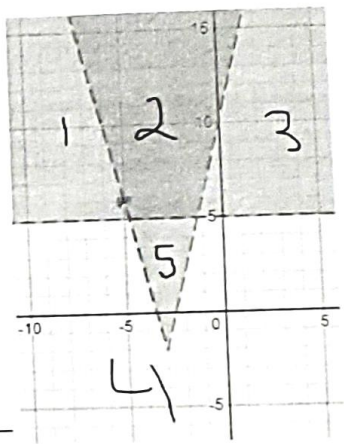
$y \leq -2x + 2$

$y \geq -2x - 2$

(4,-2)? No



0:02:00



$y > 4|x+3|-2$

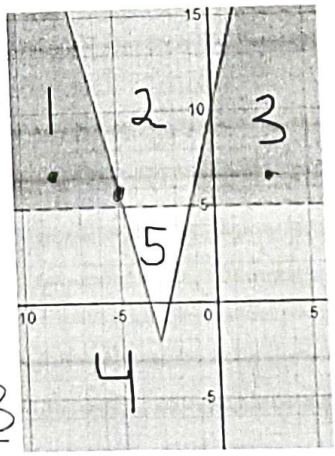
$y > 5$

Solution Region: 2

2 Solution Points include: _____ _____

Is (-5, 6) a solution? explain No

0:01:30



$y \leq 4|x+3|-2$

$y > 5$

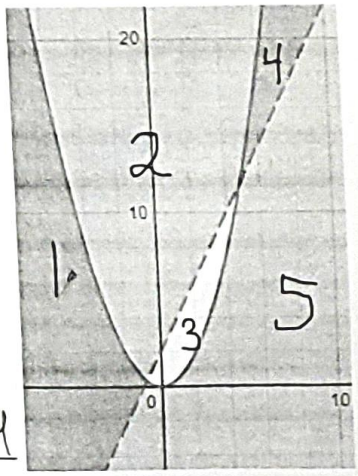
Solution Region: 1 & 3

2 Solution Points include: _____ _____

Is (-5, 6) a solution? explain Yes it is on the boundary of the solution region & the line is solid

any point in 1 & 3 (-8, 7) or (3, 6)

0:01:30



$y > \frac{1}{2}x^2$

$y > 2x+2$

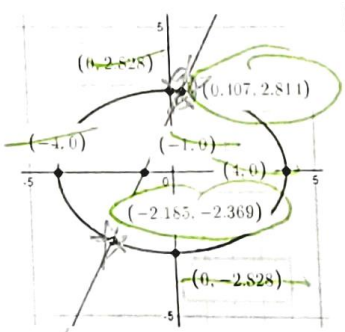
Solution Region: 1 & 4

2 Solution Points include: _____ _____

Is (-5, 6) a solution? explain Yes

Non Linear Systems of Equations and Inequalities Review Guide

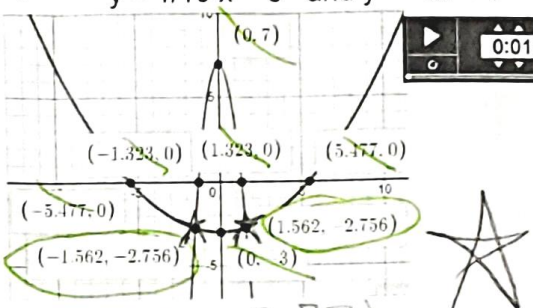
What are the solution coordinates to the system $x^2 + 2y^2 = 16$ and $y = 2x + 2$



(.107, 2.811)

(−2.185, −2.369)

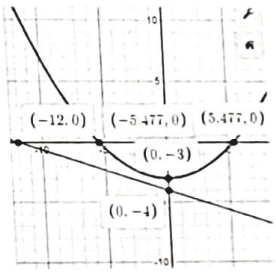
What are the solution coordinates to the system $y = 1/10\ x^2 - 3$ and $y = -4x^2 + 7$



(−1.562, −2.756)

(1.562, −2.756)

What are the solution coordinates to the system $y = 1/10\ x^2 - 3$ and $y = -1/3x - 4$



No Solution

Solve using elimination

$-3\,(x^2 - y = -4)$

$3x^2 - y = -5$

$-3x^2 + 3y = +12$

$2y = +8$

$y = +4$

$x^2 - (+4) = -4$

$x^2 - 4 = -4$

$x^2 = 0$

$x = 0$

$(0, 4)$

$3x^2 - (4) = -5$

$3x^2 - 4 = -5$

$3x^2 = 0$

$x^2 = 0$

$x = 0$

Solve using subsitution

$3x^2 + 5y = -2$

$x - 4 = -18$

$+4 \quad +4$

$x = -14$

$3(-14)^2 + 5y = -2$

$3 \cdot 196 + 5y = -2$

$588 + 5y = -2$

$5y = -590$

$y = -10$

$(-14, -10)$

Solve using elimination

$\frac{4}{x^2} + \frac{6}{y^2} = \frac{7}{4} \rightarrow \frac{4}{x^2} + \frac{6}{y^2} = \frac{7}{4}$

$3\left(\frac{1}{x^2} - \frac{2}{y^2} = 0\right) \rightarrow \frac{3}{x^2} - \frac{6}{y^2} = 0$

Solution if $x = 2$

$\frac{1}{(2)^2} - \frac{2}{y^2} = 0$

$\frac{1}{4} - \frac{2}{y^2} = 0$

$\frac{1}{4} = \frac{2}{y^2}$

$1 \cdot y^2 = 4 \cdot 2$

$y^2 = 8$

$y = \pm\sqrt{8}$

$(2, \sqrt{8})\ (2, -\sqrt{8})$

Solution if $x = -2$

$\frac{1}{(-2)^2} - \frac{2}{y^2} = 0$

$\frac{1}{4} - \frac{2}{y^2} = 0$

$y = \pm\sqrt{8}$

$(-2, \sqrt{8})$

$(-2, -\sqrt{8})$

$\frac{7}{x^2} = \frac{7}{4}$

$7x^2 = 28$

$x^2 = 4$

$x = \pm 2$

$2 \quad -2$

$y = 0$