

# Climb the ladder 5.2 5.4.5.5

## Ladder 1

Solve the system by substitution

$$\begin{cases} x+y=2 \\ y=x^2-4x+4 \end{cases} \quad \begin{matrix} (2, 0) \\ (1, 1) \end{matrix}$$

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

$$x^2 - 3x + 2 = 0$$

$$(x-2)(x-1) = 0$$

$$x=2 \quad x=1$$

$$\begin{cases} 2x+5y^2=14 \\ -x-3y=-3 \end{cases}$$

$$-x = +3y - 3$$

$$x = -3y + 3$$

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

$$-6y + 6 + 5y^2 = 14$$

$$5y^2 - 6y - 8 = 0$$

$$(-3, 2)$$

$$\left( \frac{5.4}{5}, \frac{-4}{5} \right)$$

$$\text{or } (5.4, -0.8)$$

$$-x - 3\left(\frac{-4}{5}\right) = -3$$

$$-x + \frac{12}{5} = -3$$

$$-x = -5.4$$

$$x = 5.4$$

$$(1, 3)$$

$$(1, -3)$$

$$(-1, 3)$$

$$(-1, -3)$$

## Ladder 2

Solve by elimination or addition

$$4x^2 + y^2 = 13$$

$$-1(x^2 + y^2 = 10) \rightarrow -x^2 - y^2 = -10$$

$$4x^2 + y^2 = 13$$

$$-x^2 - y^2 = -10$$

$$\frac{3x^2}{3} = \frac{3}{3}$$

$$x^2 = 1$$

$$\begin{matrix} x^2 + y^2 = 10 \\ y^2 = 9 \end{matrix}$$

4 answers

## Ladder 3

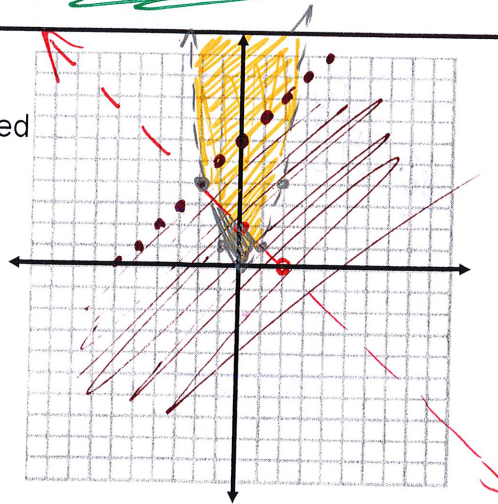
Graph the solution set. Use colors if needed

$$y > x^2$$

$$x + y < 2$$

$$y < x + 6$$

$$0 < 6 \text{ up}$$

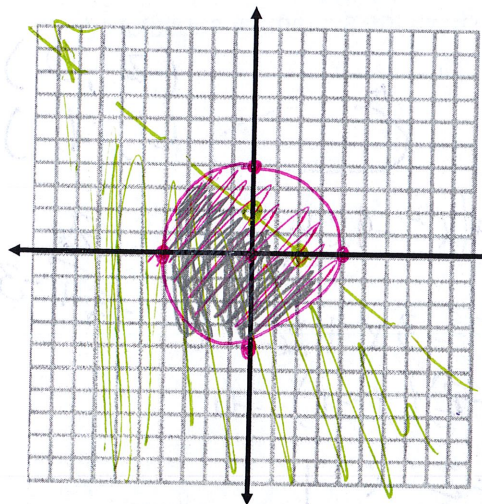


Ladder 4

Graph the solution set. Use colors if needed

$$x^2 + y^2 \leq 16$$

$$x + y < 2$$



Ladder 5

Graph the solution set. Use colors if needed

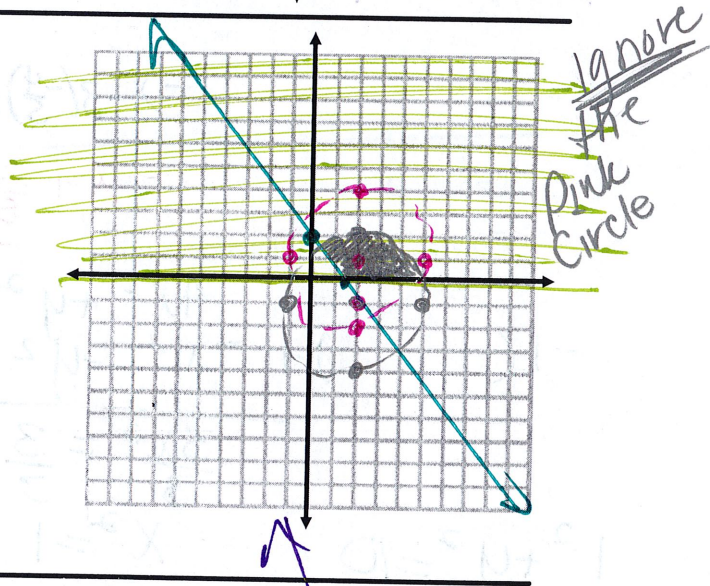
$$y \geq 0$$

$$3x + 2y \geq 4$$

$$(x-2)^2 + (y+1)^2 < 9$$

$$(2, -1) \quad r = 3$$

$$\begin{array}{r|l} x & y \\ \hline 4 & 0 \\ 2 & 0 \end{array}$$



Ladder 6

Graph the solution set. Use colors if needed

$$y \geq 0$$

$$x \geq 0$$

$$3x + y < 9$$

$$2x + 3y \leq 9$$

$$\begin{array}{r|l} x & y \\ \hline 0 & 9 \\ 3 & 0 \end{array}$$

$$\begin{array}{r|l} x & y \\ \hline 0 & 3 \\ 9 & 2 \end{array}$$

