

Systems Review

Solve each system.

$$\begin{aligned} 1) \quad & -x + y + 2z = 3 \\ & x - y - 6z = -15 \\ & x - 3y - 2z = -5 \end{aligned}$$

$$(4, 1, 3)$$

$$\begin{aligned} -x + y + 2z &= 3 \\ x - y - 6z &= -15 \\ \hline -4z &= -12 \\ z &= 3 \end{aligned}$$

$$\begin{aligned} x - 1 - 6(3) &= -15 \\ x - 1 - 18 &= -15 \\ x - 19 &= -15 \\ x &= 4 \end{aligned}$$

$$\begin{aligned} -x + y + 2z &= 3 \\ x - 3y - 2z &= -5 \\ \hline -2y &= -2 \quad y = 1 \end{aligned}$$

$$\begin{aligned} 3) \quad & y = x^2 - 9x + 12 \\ & y = -x - 4 \end{aligned}$$

$$(4, -8)$$

$$x^2 - 9x + 12 = -x - 4$$

$$x^2 - 8x + 16 = 0 \quad y = -4 - 4 = -8$$

$$\begin{aligned} (x - 4)(x - 4) &= 0 \\ x &= 4 \end{aligned}$$

$$\begin{aligned} 2) \quad & x - 3y - 3z = 10 \\ & -3x + 2y = -3 \\ & x - 2y + 3z = -8 \end{aligned}$$

$$(1, 0, -3)$$

$$\begin{aligned} x - 3y - 3z &= 10 \\ x - 2y + 3z &= -8 \\ \hline -y - 6z &= 18 \end{aligned}$$

$$\begin{aligned} 4x - 15y &= 6 \\ -6x + 4y &= -6 \\ \hline -11y &= 0 \\ y &= 0 \end{aligned}$$

$$\begin{aligned} 3(2x - 5y) &= 2 \\ 2(-3x + 2y) &= -3 \end{aligned}$$

$$\begin{aligned} 2x &= 2 \\ x &= 1 \end{aligned}$$

$$\begin{aligned} 4) \quad & y = x^2 - 4x - 1 \\ & y + 1 = x \\ & y = x - 1 \end{aligned}$$

$$(0, -1), (5, 4)$$

$$x^2 - 4x - 1 = x - 1$$

$$\begin{aligned} y = 0 - 1 &= -1 \\ y = 5 - 1 &= 4 \end{aligned}$$

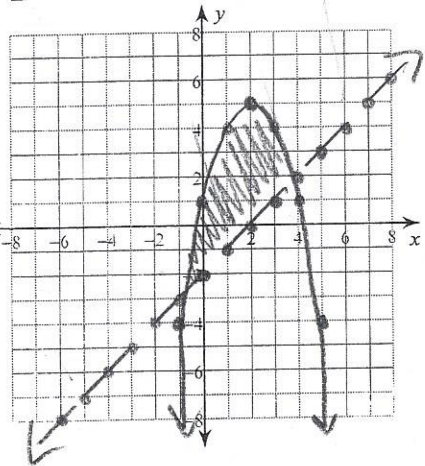
$$x^2 - 5x = 0$$

$$\begin{aligned} x(x - 5) &= 0 \\ x &= 0, 5 \end{aligned}$$

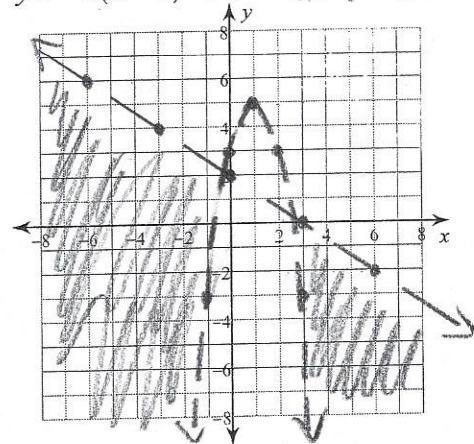
Solve each inequality by graphing.

$$\begin{aligned} 5) \quad & y > x - 2 \quad 0 > -2 \\ & y \leq -x^2 + 4x + 1 \quad 0 \leq 1 \end{aligned}$$

$$\begin{aligned} \frac{-4}{2(-1)} &= \frac{-4}{-2} \\ x &= 2 \\ -(2)^2 + 4(2) + 1 &= -4 + 8 + 1 \\ y &= 5 \\ (2, 5) \end{aligned}$$



$$\begin{aligned} 6) \quad & 2x + 3y < 6 \quad 0 < 6 \\ & y > -2(x - 1)^2 + 5 \quad (1, 5) \quad 0 > 3 \end{aligned}$$



$$\begin{aligned} 3y &< -2x + 6 \\ y &< -\frac{2}{3}x + 2 \end{aligned}$$