

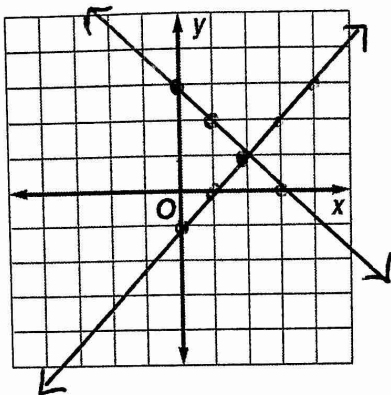
Name: _____

Solve Systems of Equations by Graphing

Solve each system of equations by graphing.

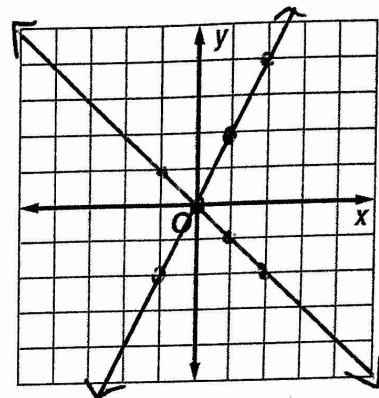
1) $y = x - 1$
 $y = -x + 3$

$(2, 1)$



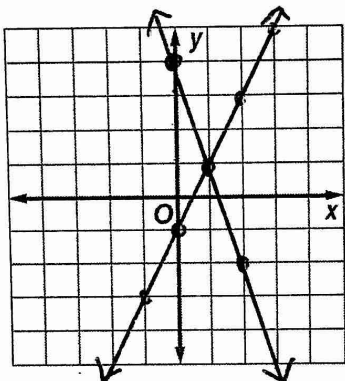
2) $y = -x$
 $y = 2x$

$(0, 0)$



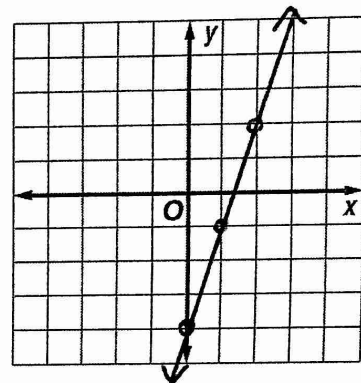
3) $y = -3x + 4$
 $y = 2x - 1$

$(1, 1)$



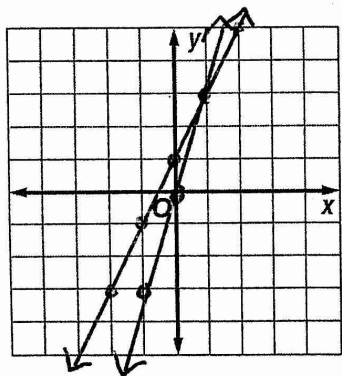
4) $y = 3x - 4$
 $-3x + y = -4$
 $+3x \quad +3x$
 $y = 3x - 4$

Infinite Solutions



5) $y = 2x + 1$
 $y = 3x$

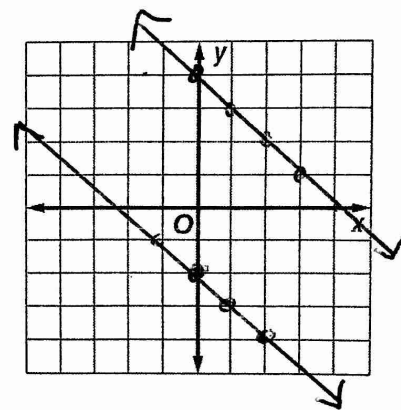
$(1, 3)$



6) $y = -x + 4$
 $x + y = -2$
 $-x \quad -x$

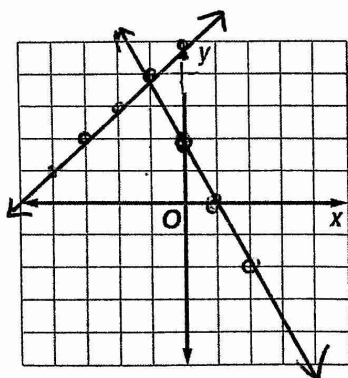
$y = -x + 2$

No Solution



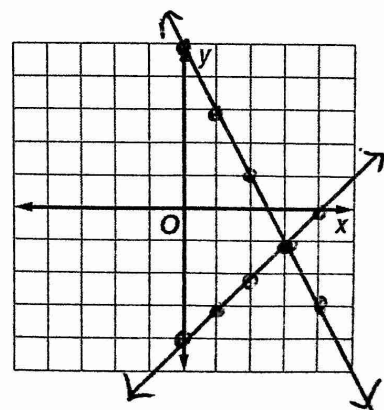
7) $y = x + 5$
 $y = -2x + 2$

$(-1, 4)$



8) $y = x - 4$
 $y = -2x + 5$

$(3, -1)$



Solve Systems of Equations by Substitution

Solve each system of equations by substitution

$$\begin{aligned} 1) \quad & y = x - 5 \\ & y = 2x \\ & 2x = x - 5 \\ & -x - x \\ \hline & x = -5 \\ & y = 2(-5) \\ & y = -10 \\ & \boxed{(-5, -10)} \end{aligned}$$

$$\begin{aligned} 2) \quad & y = x + 12 \\ & y = \frac{1}{2}x \\ & y = \frac{1}{2}(-24) \\ & y = -12 \\ & \frac{1}{2}x = x + 12 \\ & -x - x \\ \hline & -2 \cdot \frac{1}{2}x = 12 \cdot -2 \\ & x = -24 \\ & \boxed{(-24, -12)} \end{aligned}$$

$$\begin{aligned} 3) \quad & y = x - 8 \\ & y = 3x \\ & 3x = x - 8 \\ & -x - x \\ \hline & \frac{2x}{2} = \frac{-8}{2} \\ & x = -4 \\ & y = 3(-4) \\ & y = -12 \\ & \boxed{(-4, -12)} \end{aligned}$$

$$\begin{aligned} 4) \quad & y = -x - 2 \\ & 2x - 3y = -9 \\ & y = (-3) - 2 \\ & y = 3 - 2 \\ & y = 1 \\ & 2x - 3(-x - 2) = -9 \\ & 2x + 3x + 6 = -9 \\ & 5x + 6 = -9 \\ & -6 - 6 \\ \hline & \frac{5x}{5} = \frac{-15}{5} \\ & x = -3 \\ & \boxed{(-3, 1)} \end{aligned}$$

$$\begin{aligned} 5) \quad & y = 2x - 1 \\ & y = x + 1 \\ & x + 1 = 2x - 1 \\ & -x - x \\ \hline & 1 = x - 1 \\ & +1 +1 \\ \hline & 2 = x \\ & y = 2 + 1 \\ & y = 3 \\ & \boxed{(2, 3)} \end{aligned}$$

$$\begin{aligned} 6) \quad & y = 2x + 2 \\ & 4x - y = -6 \\ & y = 2(-2) + 2 \\ & y = -4 + 2 \\ & y = -2 \\ & 4x - (2x + 2) = -6 \\ & 4x - 2x - 2 = -6 \\ & 2x - 2 = -6 \\ & +2 +2 \\ \hline & \frac{2x}{2} = \frac{-4}{2} \\ & x = -2 \\ & \boxed{(-2, -2)} \end{aligned}$$

$$\begin{aligned} 7) \quad & 2x + 2y = 3 \\ & x - 4y = -1 \\ & +4y +4y \\ \hline & x = (4y - 1) \\ & 2x + 2(\frac{1}{2}) = 3 \\ & 2x + 1 = 3 \\ & 2x = 2 \\ & x = 1 \\ & 2(4y - 1) + 2y = 3 \\ & 8y - 2 + 2y = 3 \\ & 10y - 2 = 3 \\ & +2 +2 \\ \hline & \frac{10y}{10} = \frac{5}{10} \\ & y = \frac{1}{2} \\ & \boxed{(1, \frac{1}{2})} \end{aligned}$$

$$\begin{aligned} 8) \quad & y = x - 4 \\ & 4x + y = 26 \\ & 4x + (x - 4) = 26 \\ & 5x - 4 = 26 \\ & +4 +4 \\ \hline & \frac{5x}{5} = \frac{30}{5} \\ & x = 6 \\ & y = 6 - 4 \\ & y = 2 \\ & \boxed{(6, 2)} \end{aligned}$$

$$\begin{aligned} 9) \quad & x - 2y = -25 \\ & 3x - y = 0 \\ & x = 2y - 25 \\ & 3(2y - 25) - y = 0 \\ & 6y - 75 - y = 0 \\ & 5y - 75 = 0 \\ & 5y = 75 \\ & y = 15 \\ & 3x - 15 = 0 \\ & 3x = 15 \\ & x = 5 \\ & \boxed{(5, 15)} \end{aligned}$$

10) The seventh and eighth grade bands held a joint concert. Together there were 188 band members. If the eighth grade band is 3 times as big as the seventh grade band, how big is the eighth grade band?

$x = 8^{\text{th}}$ grade band
 $y = 7^{\text{th}}$ grade band

$$\begin{aligned} x + y &= 188 \\ x &= 3y \end{aligned}$$

$$\begin{aligned} 3y + y &= 188 \\ 4y &= 188 \\ y &= 47 \\ x + 47 &= 188 \\ x &= 141 \end{aligned}$$

The 8th grade band had 141 members