

Systems of Equations

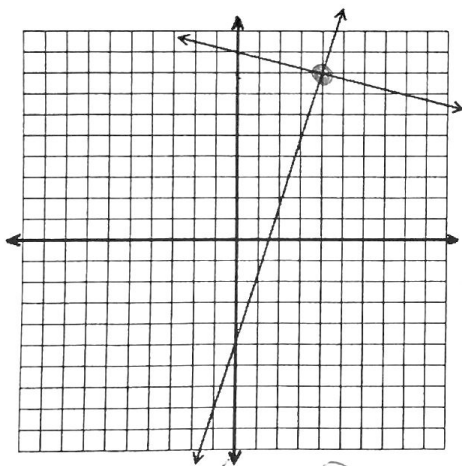
Linear

Systems of Equation:

Collection of 2 or more equations with 2 unknown variables

Solution: The point where the lines intersect.

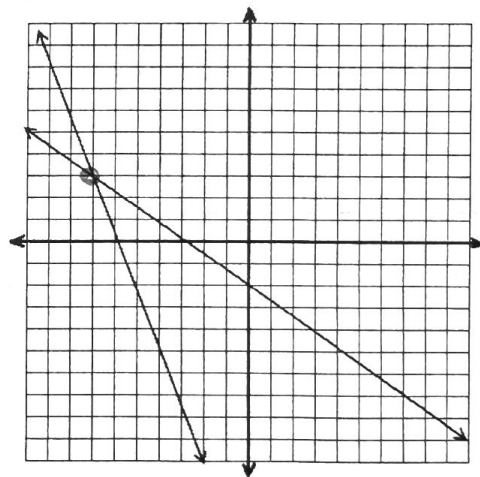
Example:
$$\begin{cases} y = x - 2 \\ y = -2x + 7 \end{cases}$$



Solution: (x, y)
 $(4, 8)$

x	$y = -4x - 3$	$y = 2x - 15$
-1	1	-17
0	-3	-15
1	-7	-13
2	-11	-11
3	-15	-9

Solution: $(2, -11)$



Solution: $(-7, 3)$

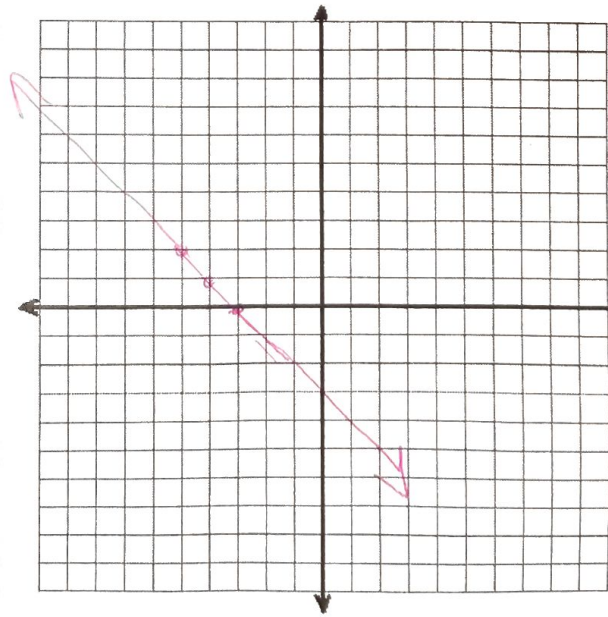
x	$y = 5x + 27$	$y = -2x + 6$
-4	7	14
-3	12	12
-2	17	10
-1	22	8
0	27	6

Solution: $(-3, 12)$

GRAPHICALLY

$$\begin{cases} y = x + 3 \\ 2y - 6 = 2x \end{cases}$$

$$\begin{aligned} 2y &= 2x + 6 \\ y &= x + 3 \end{aligned}$$

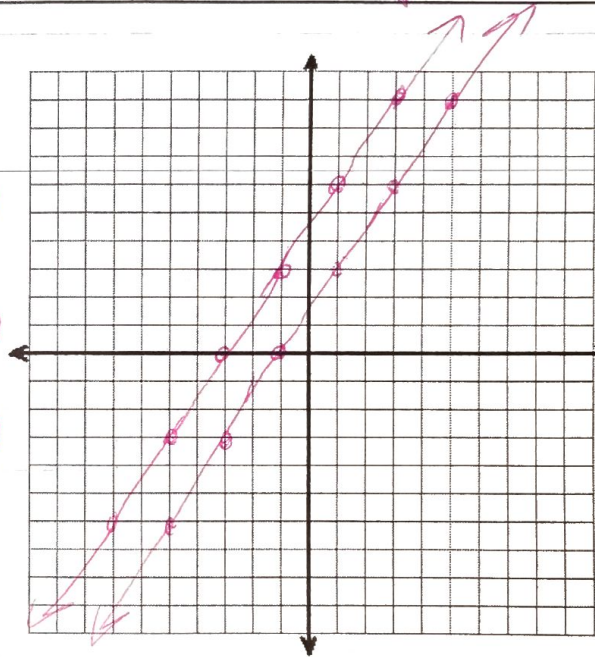


Solution: Infinitely Many

GRAPHICALLY

$$\begin{cases} y = -\frac{2}{3}x + 1 \\ 2x + 3y = 9 \end{cases}$$

$$\begin{aligned} 3y &= -\frac{2}{3}x + 3 \\ y &= -\frac{2}{9}x + 1 \end{aligned}$$



Solution: NO Solution

GRAPHICALLY

$$\begin{aligned} 2x - y &= 4 \\ -y &= -2x + 4 \\ y &= 2x - 4 \end{aligned}$$

$$\begin{cases} 2x - y = 4 \\ y = \frac{1}{3}x + 1 \end{cases}$$

