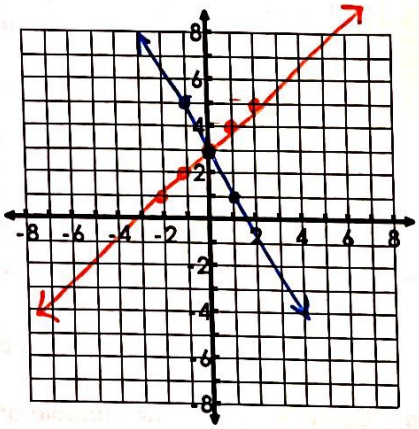
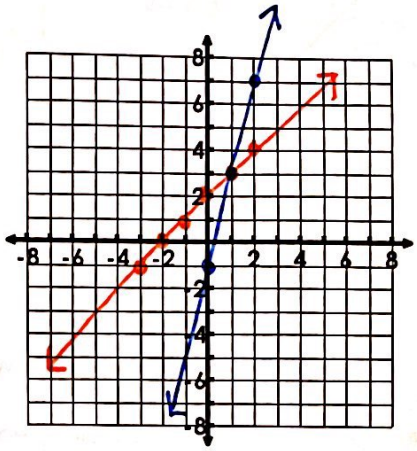
# Day 1 – Graphing Systems of Equations – Practice

Directions: Find the solution to each systems of equations. Use the graphing calculator to check your work. If there is no solution or infinitely many, explain why.

1) $\begin{cases} y = x + 3 \\ y = -2x + 3 \end{cases}$ **(0, 3)**



2) $\begin{cases} y = x + 2 \\ y = 4x - 1 \end{cases}$ **(1, 3)**

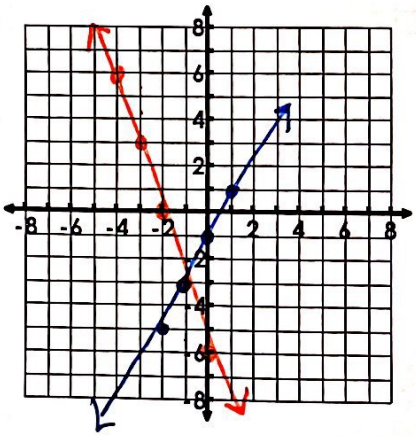


3) $\begin{cases} 3x + y = -6 \\ -2x + y = -1 \end{cases}$

$3x + y = -6 \rightarrow y = -3x - 6$

$-2x + y = -1 \rightarrow y = 2x - 1$

**(−1, −3)**

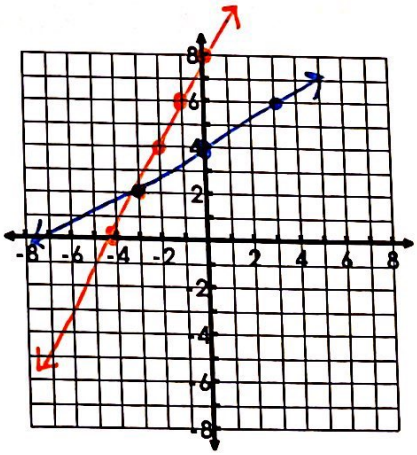


4) $\begin{cases} y = 2x + 8 \\ -2x + 3y = 12 \end{cases}$

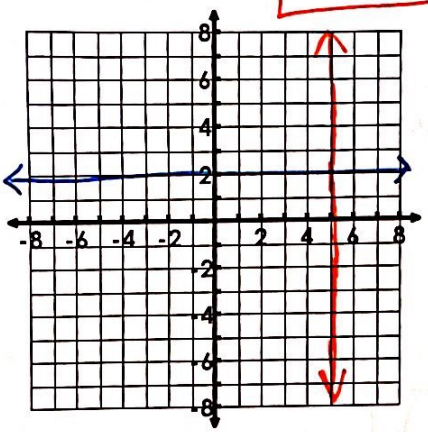
$3y = 2x + 12$

$y = \frac{2}{3}x + 4$

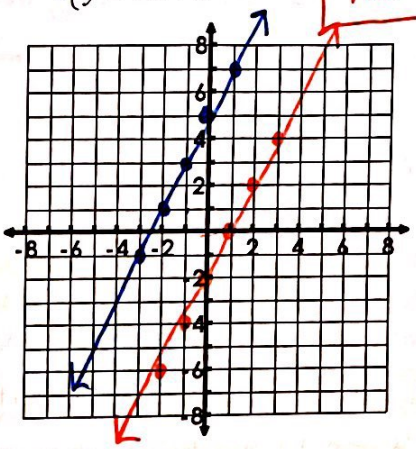
**(−3, 2)**



5) $\begin{cases} x = 5 \\ y = 2 \end{cases}$ (5, 2)

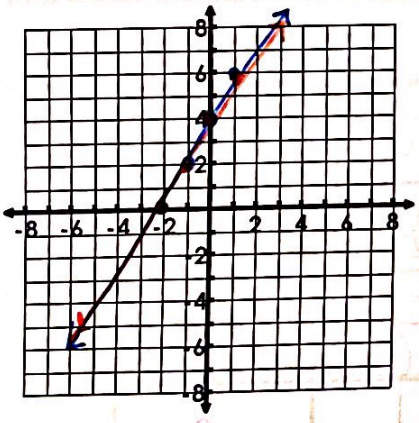


6) $\begin{cases} y = 2x - 2 \\ y = 2x + 5 \end{cases}$ No Solution



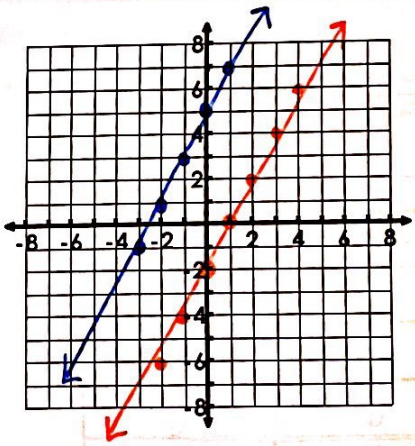
7) $\begin{cases} y = 2x + 4 \\ 2y = 4x + 8 \end{cases} \rightarrow y = 2x + 4$

Infinite Solutions



8) $\begin{cases} 2 + y = 2x \rightarrow y = 2x - 2 \\ y - 2x = 5 \rightarrow y = 2x + 5 \end{cases}$

No Solution



Directions: Determine if the following systems will have infinite, no, or one solution. Then explain why.

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

No Solution because slopes are the same, but they have different y-intercepts

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

One solution because they have different slopes and y-intercepts.

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

One solution because it has different slopes

12) $\begin{cases} y = -x + 1 \\ 2y = -2x + 2 \end{cases} \rightarrow y = -x + 1$

Infinite solutions because the slopes and y-intercepts are the same.

Complete the tables. Then determine the solution to the systems of equations.

13) (3, -3)

| x | $y = -x$ | $y = x - 6$ |
|---|---|---|
| 0 | 0 | -6 |
| 3 | -3 | -3 |
| 6 | -6 | 0 |
| 9 | -9 | 3 |

14) (1, 6)

| x | $y = 2x + 4$ | $y = 4x + 2$ |
|---|---|---|
| -2 | 0 | -6 |
| -1 | 2 | -2 |
| 0 | 4 | 2 |
| 1 | 6 | 6 |

15) (3, 6)

| x | $y = x + 3$ | $y = 2x$ |
|---|---|---|
| 1 | 4 | 2 |
| 2 | 5 | 4 |
| 3 | 6 | 6 |
| 4 | 7 | 8 |

16) (-4, 0)

| x | $y = \frac{1}{2}x + 2$ | $y = x + 4$ |
|---|---|---|
| -6 | -1 | -2 |
| -4 | 0 | 0 |
| -2 | 1 | 2 |
| 0 | 2 | 4 |