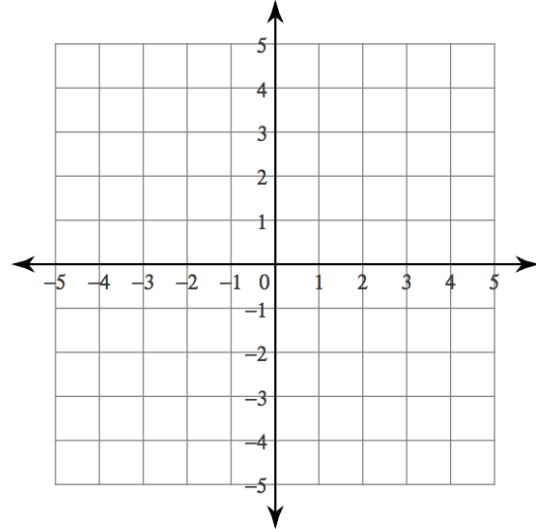# Systems of equations

Solve each system by Graphing

1. $\begin{cases} 4x + y = 2 \\ x - y = 3 \end{cases}$
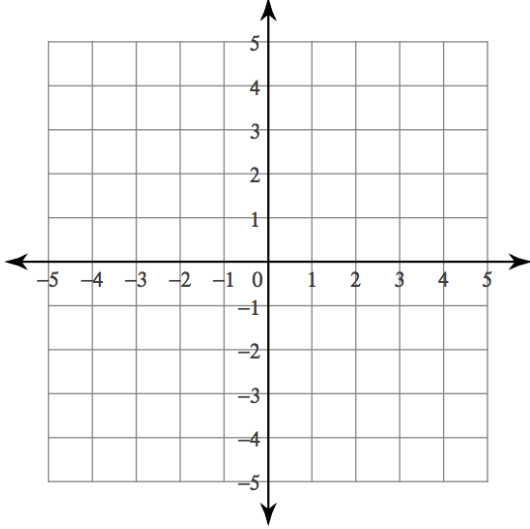
2. $\begin{cases} x - y = 3 \\ 7x - y = -3 \end{cases}$

Solve each system by substitution.

3. $\begin{cases} x + 7y = 0 \\ 2x - 8y = 22 \end{cases}$

4. $\begin{cases} 3x - 5y = 17 \\ y = -7 \end{cases}$

5. $\begin{cases} -7x + 4y = 24 \\ 4x - 4y = 0 \end{cases}$

6. $\begin{cases} 4x - y = 20 \\ -2x - 2y = 10 \end{cases}$

Solve each system by elimination.

7. $\begin{cases} 8x - 6y = -20 \\ -16x + 7y = 30 \end{cases}$

8. $\begin{cases} -24 - 8x = 12y \\ 1 + \frac{5}{9}y = -\frac{7}{18}x \end{cases}$

9. $\begin{cases} -16 + 20x - 8y = 0 \\ 36 = -18y - 22x \end{cases}$

10. $\begin{cases} \frac{-5}{7} + \frac{-11}{7}x = -y \\ 2y = 7 + 5x \end{cases}$

Solve each system using Cramer's rule.

11. $\begin{cases} x - 5y = -5 \\ -4x - 2y = 20 \end{cases}$

12. $\begin{cases} -5x + 5y = 10 \\ -2x + 2y = -4 \end{cases}$

13. $\begin{cases} -x - y = -1 \\ 3x = 3 - 3y \end{cases}$

Critical thinking

14. Write a system of equations with the solution (4,-3)

Solve using substitution.

15. $\begin{cases} x = -4z - 19 \\ y = 5x + z - 4 \\ -5y - z = 25 \end{cases}$

16. $\begin{cases} -x - y - 3z = -9 \\ z = -3x - 1 \\ x = 5y - z + 23 \end{cases}$

Solve using elimination.

17. $\begin{cases} -x - 5y - 5z = 2 \\ 4x - 5y + 4z = 19 \\ x + 5y - z = -20 \end{cases}$

18. $\begin{cases} 4x + 4y + z = 24 \\ 2x - 4y + z = 0 \\ 5x - 4y - 5z = 12 \end{cases}$

19. $\begin{cases} 6r - s + 3t = -9 \\ 5r + 5s - 5t = 20 \\ 3r - s + 4t = -5 \end{cases}$

20. $\begin{cases} -6x - 2y + 2z = -8 \\ 3x - 2y - 4z = 8 \\ 6x - 2y - 6z = -18 \end{cases}$

21. $\begin{cases} 3r - 2s + t = 5 \\ 5r + 4s - 3t = -7 \\ 4r + s - t = -1 \end{cases}$

22. Write a system of equations with the solution (2, 1, 0).

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