

1. Determine if $(2, 5)$ is a solution to the system $\begin{cases} x + 4y = 22 \\ 6x - 2y = 2 \end{cases}$

2. Solve the system $\begin{cases} 4x + 2y = 14 \\ -2x - y = -7 \end{cases}$ graphically. If the system has an infinite number of solutions, use set-builder notation to write the solution set. If the system has no solution, state this.

3. Solve the system $\begin{cases} y = 13 - 3y \\ 2x + 9y = -8 \end{cases}$ using the substitution method. If the system has an infinite number of solutions, use set-builder notation to write the solution set. If the system has no solution, state this.

4. Solve the system $\begin{cases} 5x - 2y = -1 \\ x + 4y = 35 \end{cases}$ using the substitution method. If the system has an infinite number of solutions, use set-builder notation to write the solution set. If the system has no solution, state this.

5. Solve the system $\begin{cases} 2x + 5y = 23 \\ -7x + 4y = 70 \end{cases}$ using the elimination method. If the system has an infinite number of solutions, use set-builder notation to write the solution set. If the system has no solution, state this.

6. Solve the system $\begin{cases} \frac{1}{5}x - \frac{1}{4}y = 3 \\ \frac{2}{5}x + \frac{1}{2}y = 2 \end{cases}$ using the elimination method. If the system has an infinite number of solutions, use set-builder notation to write the solution set. If the system has no solution, state this.

7. The difference between two numbers is 30. The second number is three times as large as the first number. What are the numbers?
 Let $x =$ _____, $y =$ _____
 The two equations are _____

8. A student took out two loans totaling \$10,000 to help pay for college expenses. One loan was at 8% simple interest and the other was at 10%. After one year, the student owed \$840 in interest. Find the amount of the loan at 10%.
 Let $x =$ _____, $y =$ _____
 The two equations are _____

9. In a chemistry class, how many liters of a 4% saline solution must be mixed with a 10% solution to get 7.5 liters of a 6% solution?
 Let $x =$ _____, $y =$ _____
 The two equations are _____

10. The speed of a current is 6 mph. If a boat travels 62 miles downstream in the same time that it takes to travel 31 miles upstream, what is the speed of the boat in still water?
 Let $s =$ the speed of the boat in still water.
 The two equations are _____