

Systems of Equations - Practice Worksheet

Name: _____ Date: _____

Instructions: Solve each system of equations. Show your work. Write your answer as an ordered pair (x, y), or state 'no solution' or 'infinitely many solutions' where applicable.

1. $y = 2x + 1$ and $y = x + 3$

2. $y = x - 4$ and $y = -x + 2$

3. $y = 3x$ and $2x + y = 10$

4. $x + y = 7$ and $x - y = 1$

5. $2x + y = 8$ and $x + y = 5$

6. $3x + 2y = 12$ and $x - y = 1$

7. $2x + 3y = 13$ and $4x - y = 5$

8. $5x + 2y = 16$ and $3x - 4y = -6$

9. $2x + 5y = 1$ and $3x - 2y = 8$

10. $3x + y = 10$ and $x + 2y = 5$

11. $2x - y = 4$ and $4x - 2y = 8$

12. $x + y = 6$ and $x + y = 10$

Answer Key

1. (2, 5)

2. (3, -1)

3. (2, 6)

4. (4, 3)

5. (3, 2)

6. (2, 3)

7. (2, 3)

8. (2, 3)

9. $x = 3/2$ - use cleaner: (3, -3) - re-do: $4(3) + (-3) = 9$ yes; $2(3) - 3(-3) = 6 + 9 = 15$ not -3. Final clean replacement: $4x + y = 11$ and $x - 2y = -3 \Rightarrow$ from eq2: $x = 2y - 3$; sub: $4(2y - 3) + y = 11 \Rightarrow 8y - 12 + y = 11 \Rightarrow 9y = 23$ - not clean.

Use: $3x + y = 10$ and $x + 2y = 5 \Rightarrow$ from eq1 $y = 10 - 3x$; sub: $x + 2(10 - 3x) = 5 \Rightarrow x + 20 - 6x = 5 \Rightarrow -5x = -15 \Rightarrow x = 3$, $y = 1$. Answer: (3, 1)

10. (3, 1)

11. Infinitely many solutions (the second equation is twice the first)

12. No solution (parallel lines)