Solving Systems by Elimination

Name: _____ Date: _____ Score: _____ / 8

Quick review: Multiply an equation if needed so one variable has opposite coefficients. Add the equations to eliminate that variable. Solve, substitute back, and check both equations.

Practice: Solve each system using elimination. Show your steps in the space below each problem.

1. 2x - y = 3
x - y = 1

2. 4x + 2y = 14
7x - 3y = -8

3. x - 3y = 7
2x - 7y = 15

4. 2x + 3y = 13
3x - y = 3

5. 2x - 6y = -30
-x - y = -1

6. 4x + 8y = 0
-4x - 4y = 1

7. x - y = 11
2x + y = -8

8. 4x + 3y = 0
5x - 3y = 27

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Use the steps below to check your reasoning. Each ordered pair satisfies **both** equations.

1. x = 2, y = 1

1. Subtract equation 2 from equation 1: x = 2.

2. Substitute in x - y = 1: 2 - y = 1, so y = 1.

2. x = 1, y = 5

1. Multiply equation 1 by 3: 12x + 6y = 42. Multiply equation 2 by 2: 14x - 6y = -16.

2. Add: 26x = 26, so x = 1. Then 4 + 2y = 14, so y = 5.

3. x = 4, y = -1

1. Double equation 1: 2x - 6y = 14. Subtract equation 2: y = -1.

2. Then x - 3(-1) = 7, so x + 3 = 7 and x = 4.

4. x = 2, y = 3

1. Multiply equation 2 by 3: 9x - 3y = 9. Add equation 1: 11x = 22, so x = 2.

2. Then 3(2) - y = 3, so 6 - y = 3 and y = 3.

5. x = -3, y = 4

1. Multiply equation 2 by -6: 6x + 6y = 6. Add equation 1: 8x = -24, so x = -3.

2. Then -(-3) - y = -1, so 3 - y = -1 and y = 4.

6. x = -1/2, y = 1/4

1. Add the two equations: 4y = 1, so y = 1/4.

2. Then 4x + 8(1/4) = 0, so 4x = -2 and x = -1/2.

7. x = 1, y = -10

1. Add the two equations: 3x = 3, so x = 1.

2. Then 1 - y = 11, so y = -10.

8. x = 3, y = -4

1. Add the two equations: 9x = 27, so x = 3.

2. Then 4(3) + 3y = 0, so 3y = -12 and y = -4.