**ELIMINATION**

**To solve a linear system by elimination:**

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|  | If the two equations have the same x OR y coefficient, they can be solved by a process called ‘Elimination’. We can do this by either **adding or subtracting the two equations!** |

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| **Step 1: Eliminate** by *adding or subtracting* the two equations.  \*Add if the signs are opposite, subtract if the signs are the same. | **Example 1**  2x + 5y = 30  + 4x – 5y = 0 |  | **Example 2**  3x + 4y = 22  **–**  3x – y = 17 | |
| **Step 2: Solve** for the first variable by solving the equation |  |  |  | |
| **Step3:** **Substitute** your solution from step 2 into one of the original equations (you may choose either one to use). | 2x + 5y = 30  2(\_\_\_) + 5y = 30 |  | 3x - y = 17  3x - (\_\_) = 17 | |
| **Step 4: Solve** for the second variable by solving the equation |  |  |  | |
| State the final answer as a coordinate (x, y) | **(x , y)**  **(\_\_\_, \_\_\_)** |  | **(x , y)**  **(\_\_\_, \_\_\_)** |
| You can **check** your work by completing aLS/RS check. Substitute your (x,y) solution into the original equation that you **DID NOT** use in step 3 above. |  |  |  |

**Example 3 Example 4**

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|  | 6x + 5y = 3 x + y = 14 | | 4x + 3y = 3  3x – 2y = -19 |
| **Step 1: Eliminate** by *adding or subtracting* the two equations.  \*Add if the signs are opposite, subtract if the signs are the same. |  |  |  |
| **Step 2: Solve** for the first variable by solving the equation |  |  |  |
| **Step3:** **Substitute** your solution from step 2 into one of the original equations (you may choose either one to use). |  |  |  |
| **Step 4: Solve** for the second variable by solving the equation |  |  |  |
| State the final answer as a coordinate (x, y) | **(x , y)**  **(\_\_\_, \_\_\_)** |  | **(x , y)**  **(\_\_\_, \_\_\_)** |
| You can **check** your work by completing aLS/RS check. Substitute your (x,y) solution into the original equation that you **DID NOT** use in step 3 above. |  |  |  |

**Practice: Solve by Elimination.**

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| 1. 4x + 2y = 3   3x + 2y = 5 | 1. 3x – 5y = 8   10x + 5y =44 |
| 1. x - 3y = 0   3x - 2y = -7 | 1. 3x – 2y = 15   -4x + 3y = -20 |
| **ANSWERS: 1. (-2, 5.5), 2. (4, 0.8), 3. (-3, -1), 4. (5, 0)** | |