Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour: \_\_\_\_\_\_\_\_\_\_\_

6.6 Solving Systems by Combining Equations

**LT 6.6a** I can use the combination method of combining two equations in standard form to find the solution to a system of equations.

Pablo and Jasmine showed their method for solving systems of linear equations. Their teacher then asked the class how they would solve the following system using the methods from Problem 6.5.

2*x* – *y* = 4 *x* + *y* = 5

Their classmate Samantha offered the following solution:

* Is her solution correct? Why or why not?

Pablo said, “Jasmine and I combined equations by subtracting equals from equals.” Samantha said, “In my method, I combined equations by adding equals to equals.” You will use both methods in this Problem.

1. Use the methods of Pablo and Jasmine, and Samantha to solve each system.
2. –*x* + 4*y* = 2 *x* + 2*y* = 5
3. 2*x* + 3*y* = 4 5*x* + 3*y* = -8
4. 2*x* – 3*y* = 4 5*x* – 3*y* = 7
5. In the T-shirt and cap sale, the equation 5*s* + 10*c* = 125 related profit to the number of shirts and caps sold.
6. Find five solutions of the equation.

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1. Samantha said, “If we had doubled the price of each item, we would have doubled the profit for the same numbers of shirts and caps sold.” Do you agree with her reasoning? Why or why not?

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1. Write Samantha’s new equation. Check whether the solutions from part (1) are also solutions of the new equation.

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1.
2. Is System B below equivalent to System A? Explain.

System A

3*x* + 2*y* = 10 4*x* – *y* = 6

System B

3*x* + 2*y* = 10 8*x* – 2*y* = 12

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