

### **7.3: Solve Systems of Equations by Adding or Subtracting**

**Goals:** \*Find the solution to a system of equations by eliminating a variable using addition or subtraction  
\*Arrange systems so you can eliminate

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**By which two methods can you already solve a system?**

**Now you will be able to solve an equation by ELIMINATING a variable!!**

**Ex:**  $2x + 3y = 11$   
 $-2x + 5y = 13$

**Ex:**  $4x + 3y = 2$   
 $5x + 3y = -2$

**Ex:**  $3x + 4y = 8$   
 $-3x + 5y = 10$

**Ex:**  $5x + 6y = 4$   
 $7x + 6y = 8$

**Ex:**  $8x - 4y = -4$   
 $4y = 3x + 14$

**Ex:**  $9x - 3y = 18$   
 $3y = -7x + 30$

## **7.4: Solve Systems of Equations by Multiplying**

**Goals:** \*Find the solution to a system of equations by eliminating a variable using multiplication

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**\*Can you add or subtract these equations as they written and still eliminate one of the variables?**

$$5x + 2y = 16$$

$$3x - 4y = 20$$

**\*Could you manipulate either equation so you COULD eliminate a variable?**

**Ex:**  $6x + 5y = 19$

$$2x + 3y = 5$$

**Ex:**  $2x + y = -9$

$$4x + 11y = 9$$

**Ex:**  $4x + 5y = 35$

$$3x - 2y = 9$$

**Ex:**  $3x - 7y = 5$

$$9y = 5x + 5$$

**Ex:**  $2x - 3y = 6$   
 $4y = -7x - 8$

**Ex:** During a kayaking trip a kayaker travels 12 miles upstream (against the current) and 12 miles downstream (with the current). It took 3 hours to go upstream and 2 hours to go downstream. The speed of the current stayed the same throughout the trip. Find the average speed of the kayaker and the average speed of the current.

**Ex:** A riverboat travels 28 miles upstream in 7 hours. It travels 28 miles downstream in 5 hours. Find the average speed of the riverboat and the current.