

## 7.2: Solve Systems of Equations by Substitution

**Goals:** \*Find the solution to a system of equations by substitution

\*Use substitution to find a solution to real-world systems of equations

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### Steps to Substitution

### **\*Things to Look For\***

1.

2.

3.

4.

**Ex:**  $y = 3x + 2$   
 $x + 2y = 11$

**Ex:**  $x - 2y = -6$   
 $4x + 6y = 4$

**Ex:**  $y + 2x = 5$   
 $3x + y = 10$

**Ex:**  $x - y = 3$   
 $x + 2y = -6$

**Ex:**  $3x + y = -7$   
 $-2x + 4y = 0$

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

**Ex:**  $-5x - y = 12$   
 $3x - 5y = 4$

**Ex:**  $-\frac{1}{2}x + y = -1$   
 $-2x + 8y = -7$

**Ex:**  $2x + y = -6$   
 $4x - y = -18$

**Ex:** Many businesses pay website hosting companies to store and maintain the computer files that make up their websites. Internet service providers also offer website hosting. The costs for website offered are shown in the table below. Find the number of months after which the total cost for website hosting will be the same for both companies.

| Company                   | Set- up free<br>(dollars) | Cost per month<br>(dollars) |
|---------------------------|---------------------------|-----------------------------|
| Internet service provider | 10                        | 21.95                       |
| Website hosting company   | None                      | 22.45                       |

**Ex:** A food cooperative is a business that usually offers special prices on locally grown food and produce. Some cooperatives are clubs and others are retail stores. The weekly costs for seasonal produce offered by a club-based and a store-based food cooperative are shown in the table. Find the number of weeks at which the total cost of weekly produce will be the same.

| Type of Cooperative | Club fee (dollars) | Cost per week<br>(dollars) |
|---------------------|--------------------|----------------------------|
| Club                | \$20               | \$15                       |
| Retail              | None               | \$17.50                    |