

## Section 5-4: Solving Systems Using Linear Combinations

**Warm-up:** Write a system of equations to illustrate the following situation and solve it.

For the school play, adult tickets sell for \$5 and student tickets sell for \$3. On Saturday, a total of 390 tickets were sold and the total receipts were \$1530. How many of each type of ticket were sold?

*How can we solve a system?*

*Example 1:* Solve by linear combination.

$$\begin{cases} 3x - 5y = 11 \\ 6x + 5y = 7 \end{cases}$$

*Process to solve a system of equations by combination:*

- 1.
- 2.
- 3.
- 4.
- 5.

*Example 2:* Solve by combination.

$$\begin{cases} 3a + 2b = 5 \\ 7a + 4b = 9 \end{cases}$$

*Example 3:* Solve by combination.

$$\begin{cases} 3a + 4b + 5c = 22 \\ 2a - b + 3c = 35 \\ 7a + 3b - c = 26 \end{cases}$$

*Process to solve a system of equations by combination:*

1.

2.

3.

4.

5.

6.

*Homework:*

*"The whole of life is but a moment of time. It is our duty, therefore to use it, not to misuse it." - Plutarch*