

## 3.4 Cont. : Elimination

SWBAT use the elimination method to solve systems of linear equations.

Assignments:  
HW21

# Review: Solving Systems by Elimination

1. Decide which variable to eliminate.
  1. Any with opposite coefficients?
2. Make opposite coefficients by multiplying.
3. Add equations
  1. Variable should disappear
4. Solve new equation.
5. Substitute value into original equation. Solve.

# Solve the systems by elimination.

▶ 
$$\begin{aligned} -x + 3y &= -7 \\ 9x + 3y &= -27 \end{aligned}$$

1. 
$$\begin{aligned} 4x + 6y &= -22 \\ 4x + 9y &= -19 \end{aligned}$$

2. 
$$\begin{aligned} 2x - 7y &= 16 \\ 2x - 5y &= 8 \end{aligned}$$

3. 
$$\begin{aligned} -2x + 5y &= -3 \\ -2x - 2y &= -24 \end{aligned}$$

4. 
$$\begin{aligned} -6x - 7y &= 17 \\ -5x - 7y &= 13 \end{aligned}$$

# Solve the systems by elimination.

▶ 
$$\begin{aligned} 5x + y &= -6 \\ -15x + 3y &= 12 \end{aligned}$$

1. 
$$\begin{aligned} 12x - 6y &= 6 \\ 4x + 5y &= -5 \end{aligned}$$

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2. 
$$\begin{aligned} -10x + 5y &= 5 \\ -2x + 10y &= 28 \end{aligned}$$

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3. 
$$\begin{aligned} -4x - 3y &= -14 \\ -8x - 6y &= -28 \end{aligned}$$

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4. 
$$\begin{aligned} -11x - 11y &= 16 \\ x + y &= -2 \end{aligned}$$

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5. 
$$\begin{aligned} -10x + 5y &= 5 \\ 5x - y &= 8 \end{aligned}$$

# Solve the system by elimination.

▶ 
$$\begin{aligned} 6x - 2y &= 22 \\ -10x + 10y &= -10 \end{aligned}$$

$$\begin{array}{l} 1. \quad 8x + 6y = -14 \\ \quad -4x - 7y = -5 \end{array}$$

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$$\begin{array}{l} 2. \quad 4x + y = 27 \\ \quad 12x - 8y = 4 \end{array}$$

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$$\begin{array}{l} 3. \quad x - y = -2 \\ \quad -7x - 7y = -14 \end{array}$$

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$$\begin{array}{l} 4. \quad -3x - 12y = 0 \\ \quad 2x + 6y = 0 \end{array}$$

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$$\begin{array}{l} 5. \quad -6x + 5y = 0 \\ \quad 12x - 10y = 0 \end{array}$$

Jennifer and Peter are selling wrapping paper for a school fundraiser. Customers can buy rolls of plain wrapping paper and rolls of holiday wrapping paper. Jennifer sold 7 rolls of plain wrapping paper and 4 rolls of holiday wrapping paper for a total of \$85. Peter sold 1 roll of plain wrapping paper and 4 rolls of holiday wrapping paper for a total of \$43. Find the cost each of one roll of plain wrapping paper and one roll of holiday wrapping paper.

- ▶ Remember our four steps, and the four pieces of work/evidence that we have to show:
  1. Understand the Problem
    1. Define Variable: what is it, and what does it represent?
  2. Devise a Plan
    1. Write Equation
  3. Carry out the Plan
    1. Solve Equation
  4. Analyze Solution
    1. Does the solution make sense? Check your units!

The senior classes at High School A and High School B planned separate trips to the state fair. The senior class at High School A rented and filled 12 vans and 14 buses with 484 students. High School B rented and filled 12 vans and 10 buses with 380 students. Every van had the same number of students in it as did the buses. How many students can a van carry? How many students can a bus carry?

The school that Henry goes to is selling tickets to a fall musical. On the first day of ticket sales the school sold 7 senior citizen tickets and 7 student tickets for a total of \$119. The school took in \$171 on the second day by selling 11 senior citizen tickets and 7 student tickets. What is the price each of one senior citizen ticket and one student ticket?



Emily and Sumalee are selling pies for a school fundraiser. Customers can buy blueberry pies and blackberry pies. Emily sold 14 blueberry pies and 1 blackberry pie for a total of \$186. Sumalee sold 14 blueberry pies and 5 blackberry pies for a total of \$258. What is the cost each of one blueberry pie and one blackberry pie?