

## 5.3 Part 1

# Solving Systems Using Elimination Addition

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- Graphing
- Substitution
- **Elimination: Addition**

## Elementary Math Review (Addition)

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Add Down

$$\begin{array}{r} 2 \quad 4 \quad 5 \\ + 3 \quad 1 \quad 2 \\ \hline 5 \quad 5 \quad 7 \end{array}$$

And, yes, it will be this easy  
with EQUATIONS, too!!!!

## Elimination: Addition

Eliminate or Cancel one of the Variables

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$$\begin{array}{r} + \\ 8y + 4x = 20 \\ 2y - 4x = -30 \\ \hline \end{array}$$

You Can ADD  
Equations!

$$\frac{10y}{10} = \frac{-10}{10}$$

$$y = -1$$

$$\begin{array}{r} 8(-1) + 4x = 20 \\ -8 + 4x = 20 \\ +8 \qquad +8 \\ \hline 4x = 28 \end{array}$$

$$x = 7$$

$$(7, -1)$$

## Elimination: Addition

Eliminate or Cancel one of the Variables

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$$\begin{array}{r} + \\ \begin{array}{r} -6y + 5x = 1 \\ 6y + 4x = -10 \end{array} \end{array}$$

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$$9x = -9 \quad x = -1$$

$$6y + 4(-1) = -10$$

$$\begin{array}{r} 6y - 4 = -10 \\ +4 \quad +4 \end{array}$$

$$\hline 6y = -6$$

$$y = -1$$

$$(-1, -1)$$

**Check Your Understanding.**  
**Which variable term will Cancel?**

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$$\begin{array}{r} -4x + 2y = -10 \\ + \quad -3x - 2y = -18 \\ \hline \end{array}$$

$$\begin{array}{r} 5x - 3y = -13 \\ + \quad -2x + 3y = -2 \\ \hline \end{array}$$

$$\begin{array}{r} x - 3y = -3 \\ + \quad -x + 2y = 4 \\ \hline \end{array}$$

$$\begin{array}{r} 2x - y = -2 \\ + \quad 2x + y = 14 \\ \hline \end{array}$$

## Elimination: Addition

Eliminate or Cancel one of the Variables  
Sometimes you have to multiply first

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$$\begin{array}{r} 8x + 3y = -12 \\ -1(x + 3y = 9) \end{array}$$

$$\begin{array}{r} -3 + 3y = 9 \\ +3 \qquad +3 \\ \hline 3y = 12 \\ x = 4 \end{array}$$

$$\begin{array}{r} 8x + 3y = -12 \\ -x - 3y = -9 \\ \hline \end{array}$$

$$\begin{array}{r} 7x = -21 \\ \frac{7x}{7} = \frac{-21}{7} \\ x = -3 \end{array}$$

$(-3, 4)$

# Video Tutorial

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Link posted on 8th Grade Files

I found this by googling  
"solving systems with elimination"  
or "solving systems with addition"

This a cartoon instructor from "MyWhyU"

# Video Tutorial

Link posted on 8th Grade Files

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**youtube (Advertisements)**

**This teacher's username:  
yaymath**

I found this by searching  
on youtube. Lots of videos,  
but lots of ads and lots of  
distractions.



**Homework**

**Worksheet**

**Let's Do the First few Together!**



$$\begin{array}{r}
 2x - 3y = 10 \\
 3x + 3y = 0 \\
 \hline
 5x = 10 \\
 \frac{5}{5}x = \frac{10}{5} \\
 x = 2
 \end{array}$$

$$\begin{array}{r}
 (2, -2) \\
 2(2) - 3y = 10 \\
 4 - 3y = 10 \\
 -4 \qquad -4 \\
 \hline
 -3y = 6 \\
 \frac{-3}{-3} \quad \frac{6}{-3} \\
 y = -2
 \end{array}$$