

1.4 The Method of Elimination

A The Method of Elimination

- ✓ Uses the transformation of a system of linear equations into an equivalent system so one of the variables can be eliminated by adding or subtracting the equations. Here are the steps to follow:
1. Align all terms vertically
 2. Decide **one variable** to be eliminated
 3. Multiply equations by convenient numbers
 4. Add or subtract equations to eliminate **one variable**
 5. Solve for **the other variable**
 6. Use substitution to find **the variable that has been eliminated**
 7. Check your solution by using substitution into the original equations

Example 1. Solve the following system of linear equations by elimination $\begin{cases} x + y + 1 = 0 \\ x = y + 3 \end{cases}$

Step 1 Align all terms vertically	
Step 2 Decide one variable to be eliminated	
Step 3 Multiply equations by convenient numbers	
Step 4 Add or subtract equations to eliminate one variable	
Step 5 Solve for the other variable	
Step 6 Use substitution to find the variable that has been eliminated	
Step 7 Check your solution by using substitution into the original equations	

Example 2. Solve the following system of linear equations by elimination $\begin{cases} 2x - 3y = 5 \\ y = 3(x + 1) \end{cases}$

Step 1 Align all terms vertically	
Step 2 Decide one variable to be eliminated	
Step 3 Multiply equations by convenient numbers	
Step 4 Add or subtract equations to eliminate one variable	
Step 5 Solve for the other variable	
Step 6 Use substitution to find the variable that has been eliminated	
Step 7 Check your solution by using substitution into the original equations	

Example 3. Solve the following system of linear equations by elimination $\begin{cases} 2x + 3y + 5 = 0 \\ 5x = 2(2 - y) \end{cases}$

Step 1 Align all terms vertically	
Step 2 Decide one variable to be eliminated	
Step 3 Multiply equations by convenient numbers	
Step 4 Add or subtract equations to eliminate one variable	
Step 5 Solve for the other variable	
Step 6 Use substitution to find the variable that has been eliminated	
Step 7 Check your solution by using substitution into the original equations	

Reading: Textbook Pages 34-39

Homework: Textbook Pages 39-41 # 1-7 (as many as you can), 10, 12a, 14a, 16, 18, 20, 21, 22