VANG is a way to remember there are multiple ways to represent the same math concept.

| **V**erbal  *Words or vocabulary that describe the concept* |  |
| --- | --- |
| **A**bstract  *Formulas, equations, or symbols that represent the concept* |  |
| **N**umerical  *Numbers or numerical processes that exemplify the concept* |  |
| **G**raphical  *Graphs or pictures that represent the concept* |  |

**Subtraction**

| **V**erbal  *Words or vocabulary that describe the concept* | I have 5 dollars and buy lunch for 2 dollars. |
| --- | --- |
| **A**bstract  *Formulas, equations, or symbols that represent the concept* | 5 - 2 |
| **N**umerical  *Numbers or numerical processes that exemplify the concept* | 3 |
| **G**raphical  *Graphs or pictures that represent the concept* |  |

**Simultaneous Linear Equations**

| **V**erbal  *Words or vocabulary that describe the concept* | * Simultaneous equations are a set of equations in two or more variables for which there are values that can satisfy all the equations simultaneously. They are also known as a system of equations.      * To solve a pair of simultaneous linear equations means to find the ordered pair(s) that are solutions to both linear equations. * A linear system of equations may have no solutions, one solution, or infinitely many solutions. |
| --- | --- |
| **A**lgebraic  *Formulas, equations, or symbols that represent the concept* | There are two **algebraic** methods for solving a pair of linear simultaneous equations:   * Elimination Method – *either the x or y terms are eliminated when a pair of equivalent equations are added together* * Substitution Method – *one equation has been solved for either x or y and substituted into the other equation* |
| **N**umerical  *Numbers or numerical processes that exemplify the concept* | A pair of linear simultaneous equations may be solved **numerically** using the guess and test method.  Let’s use a table to track our guesses   | Ordered Pair |  |  | Conclusion | | --- | --- | --- | --- | | (–4, 1) | -4 – 1 = –5 | –4 +2(1) = –2 | Too low | | (–2, 3) | –2 – 3 = –5 | –2 + 2(3) = 4 | Too high | | (–3, 2) | –3 – 2 = – 5 | –3 + 2(2) = 1 | Bingo! |   The solution to this pair of simultaneous linear equations is the ordered pair (–3, 2). |
| **G**raphical  *Graphs or pictures that represent the concept* | A pair of linear simultaneous equations may be solved **graphically** by graphing both equations on the same coordinate plane and finding the point(s) of intersection. |