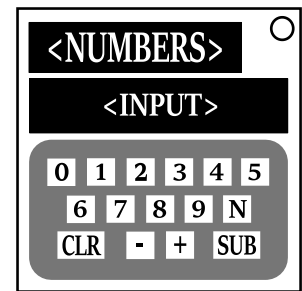


## On the Subject of Sequences

*Remember kids, order does matter.*

This module contains two displays, one displaying three numbers and one that is initially empty. It also has a keyboard underneath these displays with the digits 0-9, the letter "n", the symbols - and +, and a clear (clr) and submit (sub) button.



To solve this module the defuser must enter a formula which defines the mathematical sequence being used by the module. To do this, reference the section **Mathematical Sequences** below. Once a formula is determined, enter it into the module using the keyboard buttons in the format  $An \pm B$  where A and B are determined constants and n is the variable representing the term in the sequence and press the submit button.

If the formula is not correct, not simplified, or there are zeros and ones in places where they can be removed, then a strike will be recorded and the module WILL NOT reset.

### Mathematical Sequences

A mathematical sequence is a set of numbers in a specific order. This order is usually determined by a formula of some kind. "n" in the formula denotes the nth term in the sequence, and for the purpose of this module all formulas will involve an "n" term multiplied by some constant and possibly added/subtracted from another constant. The best way to work out the formula is to figure out what the scalar multiplying the "n" is and then figure out what the added/subtracted constant is. This is usually done by taking a few terms from the sequence and finding out what the sequence goes up or down by every term, and this will be the scalar multiplying the "n". On the module, the three numbers in one display are the first three terms in the sequence from left to right, and should be used as the terms for this procedure. From there, the second constant has to be the first term subtracted from the first constant if the first term is positive, otherwise the first constant needs to be added.

Here is an example:

Say that the displayed numbers are 54, 75, and 96. We notice that the difference between these is an increase of 21 every term. This means the formula must start with  $21n$ . Since the first term is positive, we subtract 21 from 54 to get 33, which when added to 21 multiplied by any constant gives us a term from the sequence, therefore our formula is  $21n+33$ .