



MTH 3270 Final Project Weekly Report

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HERE'S THE OVERLEAF LINK: Group 7.

0.1 What we tried

We were initially confused about the whole premise, so our first starting point was look and dissect the demo question. The demo showed 8 digits being either multiplied or added to generate 10. It was used to depict that C10 is less than or equal to 8. It was also said that it may be possible to write c10 with fewer integers. C10 seems like a large number to start of with so we started with one and increased it more to see if we could find a pattern, which we did.

We started of with one, but one is to small to generate anything by it self, so we went on with two. We started of 2 integers, and it generated 2 equations, one with addition and another with multiplication. The next turn we started of with 3 integers, which generated 3 terms whose answers were 3, 2,1. We did this until we saw a pattern which did not take long.

0.2 What we saw

We have observed that the number of integers determines the number of equations and the answers to said equations. If we have n integers it will generate at least n equations, and if they are ordered properly (see figure 1 and 2) their answers would be $n, n - 1, \dots, n - k + 1$. We also noticed if you put the equations in a grid pattern you can see the previous terms (number of integers) inside that grid(see figure 1 , equation for integer 6).

0.3 Our next step

This was a great experiment to test the water, however on big thing that we left of was parenthesis. The main reason we did this was to not confuse our self with the work. So our next step is to incorporate parenthesis into the mix. We tried it with parenthesis, but it quickly became confusing when there were more than two integers in the equations.

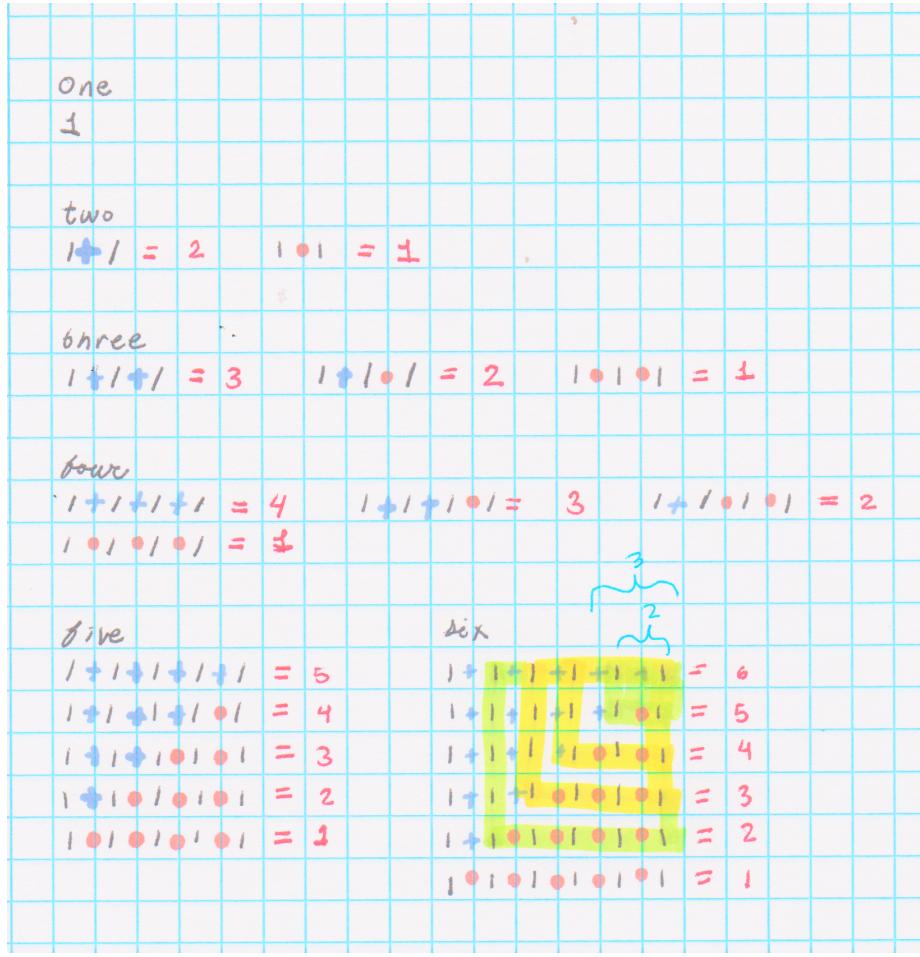


Figure 1: Initial test

C10	1	2	3	4	5	6	7	8	9	10
1	1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 = 10									
2	1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 - 1 = 9									
3	1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 = 9									
4	1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 - 1 = 7									
5	1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 - 1 = 6									
6	1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 - 1 = 5									
7	1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 - 1 = 4									
8	1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 - 2 = 3									
9	1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 - 3 = 2									
10	1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 - 4 = 1									

Figure 2: Larger scale test