Cool numbers

Solution 1

The most obvious solution for this problem is to brute force all numbers, and check if it is a cool number. [My code](#)

After running this code for several minutes, you should be able to get results for all $K \leq 9$. The only result for $K = 7$ is 3211000, for $K = 8$ is 42101000 and for $K = 9$ is 521001000. From these results, you should be able to guess the result for $K = 10$ is 6210001000.

Solution 2

There are many ways to optimize the above solution. The most standard way is to see that the sum of all digits is equal to K, thus if you restrict your brute force to exit when sum of digit is greater than K, you should get a solution which runs in around a few seconds.