# Problem of the Week
## Grade 9 and 10

## Keep on Counting

| Digit | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| # Remaining | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

For this problem you have been given 1000 digits made up of 100 zeros, 100 ones, 100 twos, $\cdots$, 100 nines. You have 100 of each possible digit.

Start counting by ones, from one. Each time you say a number you must remove the digits required to make the number from your stock pile of digits. For example, after you have counted from 1 to 14, the above table now looks like:

| Digit | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| # Remaining | 99 | 93 | 98 | 98 | 98 | 99 | 99 | 99 | 99 | 99 |

What is the largest number you can count to without running out of the digits needed to form the number?