Problem of the Week  
Problem D  
Adding Digits

\(ABC\) is a three-digit integer whose first digit is \(A\), second digit is \(B\) and third digit is \(C\). Similarly, \(DEF\) is a three-digit integer whose first digit is \(D\), second digit is \(E\) and third digit is \(F\).

We are given that

\[
\begin{array}{c}
A \\ + \\ B \\ C \\ D \\ E \\ F \\ \hline \\ 1 \\ 2 \\ 3 \\ 4
\end{array}
\]

How many different values of \(A + B + C + D + E + F\) are there?