1195. *Proposed by Mike Pinter, Belmont University, Nashville, TN.*

Consider the following alphanumeric: $MCCAIN + OBAMA = DECIDE$. As we cast our vote, we want to maximize our decision. Find the maximum value of DECIDE for the alphanmeric.

Solution by the **Armstrong Problem Solvers**, *Armstrong Atlantic State University, Savannah, GA.*

The maximum value of DECIDE is 418041, with solution $388506 + 29535 = 418041$.

From the leftmost column we must have $D = M + 1$ and, from the tens column, I must be 0 or 1. Since no digit is carried to the hundreds column, I must be even, and hence $I = 0$. That means $A = 5$ and, from the thousands column, $B = 9$. Since a 1 must be carried to the tens column, $N + 5 = E + 10$, and $N = E + 5$. Thus, E must be 1, 2, or 3, and N must be 6, 7, or 8. Since a 1 must be carried to the ten thousands column, $C + O + 1 = E + 10$, and $C + O = E + 9$.

If $E = 3$, then $N = 8$ and $C + O = 12$, so $\{C, O\}$ must be $\{3, 9\}$, $\{4, 8\}$, or $\{5, 7\}$, each of which is impossible, since $B = 9$, $N = 8$, and $A = 5$. If $E = 2$, then $N = 7$ and $C + O = 11$, so $\{C, O\}$ must be $\{3, 8\}$ since $B = 9$, $N = 7$, and $A = 5$, leaving $\{M, D\} \subset \{1, 4, 6\}$, which is impossible, since $D = M + 1$. Therefore, we must have $E = 1$, $N = 6$, and $C + O = 10$, so $\{C, O\}$ must be $\{2, 8\}$, or $\{3, 7\}$. If $\{C, O\} = \{3, 7\}$, then $\{M, D\} \subset \{2, 4, 8\}$, which is again impossible, since $D = M + 1$. Thus, $\{C, O\} = \{2, 8\}$, $M = 3$, and $D = 4$. Of the two possible solutions, the larger value of $DECIDE$ occurs when $C = 8$ and $O = 2$.

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