

Puzzle of the Week

Letter Substitutions – 5

Rules:

1. A letter represents a digit from 0 to 9, and has the same value throughout a single puzzle.
2. No number can start with the digit 0.
3. Within a puzzle, different letters must have different values.

$$\begin{array}{r}
 8 \\
 + A \\
 \hline
 B \ 2
 \end{array}
 \Rightarrow
 \begin{array}{r}
 8 \\
 + 4 \\
 \hline
 1 \ 2
 \end{array}$$

THE CHALLENGE: Find the value of B, E, S, T, O, G, and U in these puzzles.

$ \begin{array}{r} B \ E \\ + B \ E \\ \hline S \ E \ E \end{array} $	$ \begin{array}{r} T \ O \\ + G \ O \\ \hline O \ U \ T \end{array} $
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EXPLORATION: Make some letter substitution puzzles for your friends to solve.

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Letter Substitutions – 5 – Notes

THE CHALLENGE: BE + BE = SEE: For $E + E$ to end in E , it must be that $E = 0$. The largest the carry can be from the tens place to the hundreds place is 1, so $S = 1$. Finally, $B + B = 10$ forces $B = 5$.

So, the answer is $50 + 50 = 100$.

TO + GO = OUT: The largest the carry can be into the hundreds place is 1, so $O = 1$. $O + O$ ends in T forces $T = 2$.

We now have $21 + G1 = 1U2$. This means $2 + G = 1U$. For $2 + G$ to be at least 10, G must be 8 or 9. If $G = 9$, then $2 + G = 11$ and that would mean $U = 1$ and $O = 1$, which is not allowed. So, $G = 8$ and $U = 0$.

So, the answer is $21 + 81 = 102$.