Excel Column Labels

Number From Label

Let $N(c_k|c_{k-1}|...|c_1|c_0)$ be the natural number corresponding to a column label in excel. If the label has only one letter, then

$$N(A) = 1, \qquad N(B) = 2, \qquad N(C) = 3, ... \qquad N(Z) = 26.$$

Since the ascii code of A is 65, this may be written $N(c_0) = \text{ascii}(c_0) - 64$.
If the label has more than one letter,

$$N(c_k|c_{k-1}|...|c_1|c_0) = 26^k N(c_k) + 26^{k-1} N(c_{k-1}) + \cdots + 26N(c_1) + N(c_0).$$

This is the formula for converting from base 26, but has different meaning, since in base 26 there is a symbol for zero, and there is no symbol for 26 itself. The formula may be written recursively as.

$$N(c_k|c_{k-1}|...|c_1|c_0) = \begin{cases} 26N(c_k|c_{k-1}|...|c_1) + N(c_0), & k > 0 \\ \text{ascii}(c_0) - 64, & k = 0 \end{cases}.$$

Label From Number

Let $L(n)$ be the label of column n. Divide n by 26 to obtain a quotient q and remainder r.

$$n = 26q + r$$

Then, inverting the recursive formula above, yields the recursive formula

$$L(n) = \begin{cases} L(q)|L(r), & n > 26, r \in \{1, 2, ..., 25\} \\ L(q-1)|Z, & n > 26, r = 0 \\ \text{the nth letter of the alphabet}, & n \in \{1, 2, ..., 26\} \end{cases}.$$