

## Rearranging 9 digits

Find a 9-digit number  $a_1a_2 \dots a_9$  so that  $\{a_1, a_2, \dots, a_9\} = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$ , i.e. the number is a permutation of the 9 non-zero digits. We also require that  $i$  divides evenly into the  $i$ -digit number  $a_1a_2 \dots a_i$ . Without much trouble you can show that  $\{a_2, a_4, a_6, a_8\} = \{2, 4, 6, 8\}$ . And perhaps you remember various divisibility tricks.

Oddly satisfying problem.