

Problem 4 (due Monday, October 20)

Let A be the set of all positive integers which have 2025 digits in their decimal representation and all these digits are non-zero. For $a \in A$ let $t(a) = a - m(a)$, where $m(a)$ is the product of all the digits of a . Find a for which $t(a)$ is largest possible.

We received a solution from Alif Miah, Takeru Sueyoshi (from Anglo-Chinese Junior College based in Singapore), and Mathew Wolak. The submitted solutions followed essentially the same idea as our in-house solution (some had some errors, some were lacking some details). For a detailed solution see the following link [Solution](#).

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