Modulus Fields

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$$\ell(n) = 11 \cdot 10^{n-2} \sum_{j=3}^{n} 10^{n-j}$$

$$\mathcal{M}(A) = \sum_{n \in (A \subseteq \mathbb{Z})} \frac{1}{9\ell(n)}$$

The ℓ function simply returns an integer $111 \cdots 1$ such that the length of the integer is $n+1$. This is then used by the $\mathcal{M}$ function which constructs a repeating decimal over a set of integers that counts the factorization over the set. For example:

$$\mathcal{M}(\{2,3\}) = 0.\overline{011102}$$

$$\mathcal{M}(\{2,3,5\}) = 0.\overline{011112011202012102021102111103}$$

$\mathcal{M}(\{2,3,5,7\})$ has a period of 210, the data is exponentially complex however, the computational complexity calculating the repeating decimal may also be exponential, however the unrealized $\mathcal{M}$ resultant seems to computationally linear.

As a side note:

$$\ell(n) \equiv \ell{:}\,\mathbb{Z}[];\, while(i < n)\ell.push(1);; \\ \rightarrow \ell.join();$$