



Bilkent University
Department of Mathematics

PROBLEM OF THE MONTH

Term: May 2025

Let n be a positive integer and S_n be the set of all positive integers not exceeding n and relatively prime to n . Let $f(n)$ be the smallest positive integer for which the set S_n can be partitioned into $f(n)$ disjoint subsets, such that each of these subsets is an arithmetic progression. Show that there are infinitely many pairs (a, b) such that $a, b > 2025$, $a|b$ and $f(a) \nmid f(b)$.