Bilkent University
Department of Mathematics

PROBLEM OF THE MONTH

Term: November 2021

Let $1 < a_1 < a_2 < \cdots < a_n$ and $b_1, b_2, \ldots, b_n$ be integers such that for any integer M, at least one of the numbers

$$\frac{M - b_i}{a_i}, \; i = 1, 2, \ldots, n$$

is an integer. Find the smallest possible value of n.