



Bilkent University  
Department of Mathematics

## PROBLEM OF THE MONTH

**Term:** September 2022

For a given positive integer  $n$ , let  $f(n)$  be the smallest *positive* number which can be expressed as

$$\frac{ab}{a+b} - n$$

where  $a$  and  $b$  are positive integers. Find a closed form for  $f(n)$  as a function of  $n$ .