



Bilkent University
Department of Mathematics

PROBLEM OF THE MONTH

Term: October 2014

Show that there is a positive integer p for which there exists a sequence of positive integers $\{x_n\}_{n=1}^{\infty}$ such that

- each x_n is a sum of at most p powers of 2: $x_n = 2^{l_1} + 2^{l_2} + \dots + 2^{l_k}$, where $k \leq p$

and

- each x_n is divisible by 10^n .

What is the minimal possible value of p ?