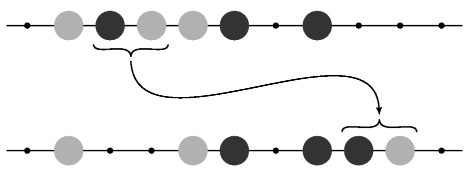
Problemen

| Problem Section

The deadline for solutions to problems in this edition is June 1.

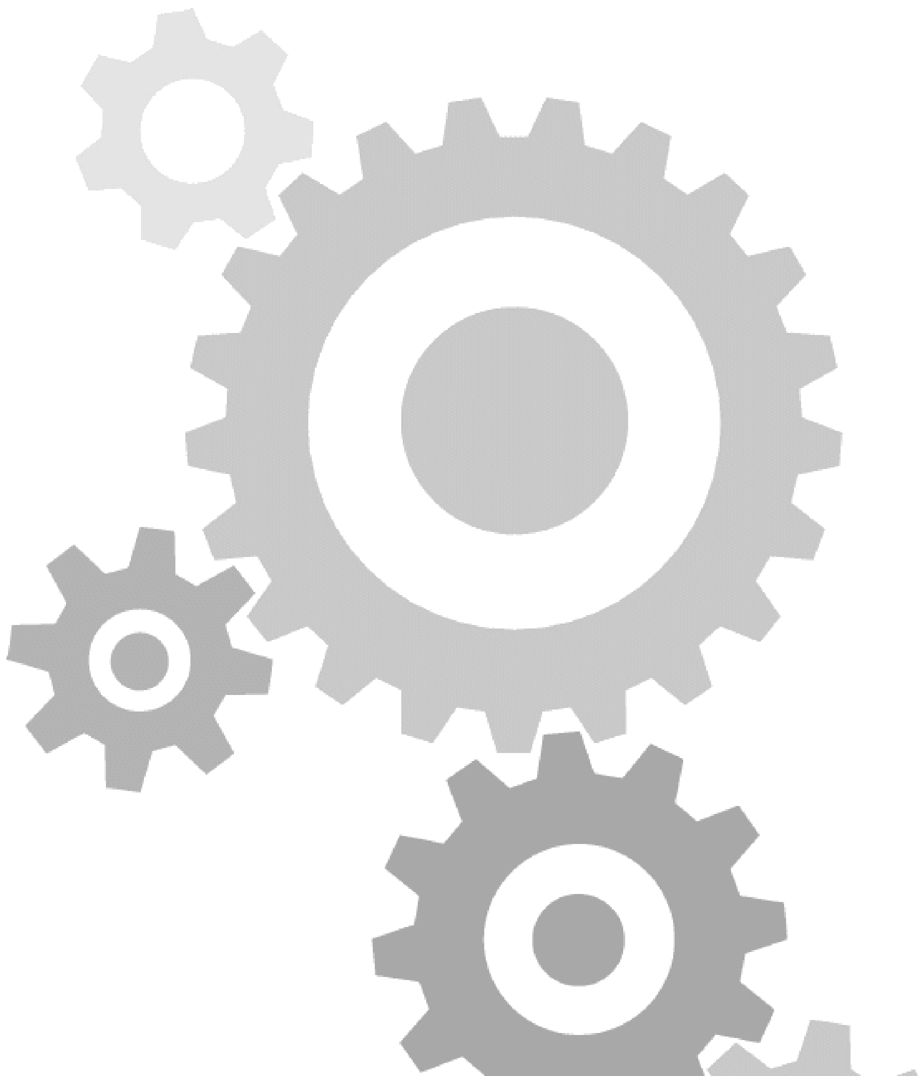
Problem A (proposed by Arne Smeets)
Show that for each positive integer n there exists a sequence of n consecutive integers such that for each k, the k-th term can be written as a sum of k distinct squares.

Problem B (proposed by Jos Brakenhoff)
The integers of the real line mark positions at which we may place chips. We start with $2n+1$ chips, alternatingly blue and red, at consecutive positions. A *move* is a translation by an integer of a pair of differently coloured chips at adjacent positions to two empty positions, as long as at least one of the new positions is adjacent to one that was already occupied.



Show that it is possible, in a finite sequence of moves, to arrange the chips so that they occupy $2n+1$ consecutive positions again, but now with all blue chips on one side and all red chips on the other. Give upper and lower bounds for the smallest number of moves required.

Problem C (proposed by Frank Redig)
Does a function $f\colon \mathbf{R} \to \mathbf{R}$ exist that is everywhere left-continuous, but nowhere continuous?



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