University of Colorado

Department of Mathematics

Problem of the Month

March 2012

Show that if $z_1, z_2, \ldots, z_n$ are complex numbers, then there is a positive integer $k \leq 2n + 1$ for which

$$\operatorname{Re}\left(z_1^k + z_2^k + \cdots + z_n^k\right) \geq 0.$$