University of Colorado

Department of Mathematics

Problem of the Month

December/January 2008

Let $P(x)$ be a (nonconstant) polynomial with integer coefficients, and let $\alpha \in R$. Assume that $\lim_{n \to \infty} \{\alpha P(n)\} = 0$, where $\{.\}$ denotes the fractional part of a number. Show that α is rational.