

Bilkent University Department of Mathematics

## Problem Of The Month

Term: April 2010

Let $a_{1}, a_{2}, \ldots$ be a non-constant arithmetic progression consisting of natural numbers. Suppose that for some $n, \sqrt[2010]{a_{n}}$ is rational. Prove that for some $m, \sqrt[3]{a_{m}}$ is rational but $\sqrt[2]{a_{m}}$ is irrational.

