# University of Colorado <br> <br> Department of Mathematics 

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## Problem of the Month

## February 2010

Given $a>0$, define $S_{n}=a^{n}+\frac{1}{a^{n}}$ for $n>0$. Prove that if $S_{k}$ and $S_{k+1}$ are both integers for some $k$, then $S_{n}$ is an integer for all $n$.

