

Problem of the Week-6: Squares in Other Bases

For an integer n , n^2 ends with 0 if and only if n ends with zero.

Now consider numbers written in base b where $5 \leq b \leq 9$. Determine for which bases, if any, the following statement is True:

n^2 ends with 0 if and only if n ends with 0.

For each base b , $5 \leq b \leq 9$ provide a proof if the statement is true, or a counterexample if it is false. ¹

¹Posting Date 3/30/08. Submit solutions to Noah Aydin, RBH 319 (e-mail or hard-copy, but hard copy submissions must include a time stamp) by 4 pm on 4/11/08.