

## Problem of the Week-4: A Logarithmic Sum

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Find the value of the sum

$$\lfloor \log_8 1 \rfloor + \lfloor \log_8 2 \rfloor + \cdots + \lfloor \log_8 1000 \rfloor$$

where  $\lfloor x \rfloor$  denotes the floor of  $x$ , the largest integer less than or equal to  $x$

As always, show your work, fully explain and justify your answer. No calculators or computers.

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Posting Date 2/19/14. Submit solutions to Noah Aydin, Mathematics Department, RBH 319 (e-mail or hard-copy, but hard copy submissions must include a time stamp) by 4 pm on 2/28/14.