Problem 4 (due Monday, March 31)
A sequence \$a_1,a_2,\ldots\$ of real numbers has the following properties:
(i) \$|a_1+a_2+\ldots +a_k|\leq 1\$ for every \$k\$;
(ii) \$|a_k-a_{k-1}|\leq 1/k\$ for every \$k\geq 2\$.
Suppose that \$\displaystyle |a_k|\geq \frac{c}{\sqrt{k}}\$ for infinitely many \$k\$. Prove that
\$c\leq \sqrt{2}\$.

We received a solution from Josiah Moltz and Dr Mathew Wolak. For detailed solutions see the following link Solution.

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