

Problem 4 (due Monday, March 30)

Let $p > 2$ be an odd prime number. Integers a_1, a_2, \dots, a_{p+1} in the interval $[0, p]$ have the following property: for every permutation π of the set $\{1, 2, \dots, p+1\}$ the number $\sum_{k=1}^{p+1} k a_{\pi(k)}$ is not divisible by p . Prove that $a_1 = a_2 = \dots = a_{p+1}$.

Ashton Keith, a freshman majoring in math, is the only person who solved the problem. His solution is based on a different idea than our solution. Both solutions are discussed in the following link [Solution](#)

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