

Problem 1: Parity of a Product

Let $\{a_1, a_2, \dots, a_n\}$ be a permutation of $\{1, 2, \dots, n\}$. For an odd integer n , determine the parity (even or odd) of the product $p = (a_1 - 1) \cdot (a_2 - 2) \cdots (a_n - n)$. Prove your answer.

As always, show your work, fully explain and justify your answer. A solution mainly obtained by computers or calculators will not be accepted.

Posting Date 8/29/2020. Submit solutions to Noah Aydin, Mathematics Department, RBH 319 by e-mail or hard-copy by noon on Sep 5, 2020. An email submission must be a single pdf file. Hard copy submissions must be dropped in the file holder at my office door (Hayes 319) and must include a time stamp.