Let $p > 2$ be a prime number. Prove that there is a permutation $(x_1, x_2, \ldots, x_{p-1})$ of the numbers $(1, 2, \ldots, p-1)$ such that

$$x_1x_2 + x_2x_3 + \cdots + x_{p-2}x_{p-1} \equiv 2 \pmod{p}.$$