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**Abstract**

Let $a$, $b$ be positive, relatively prime integers with $a < b$ and $b$ odd. Let $1/x_1$ be the greatest Egyptian fraction with $x_1$ odd and $1/x_1 \leq a/b$. We form the difference $a/b - 1/x_1 =: a_1/b_1$ (with $\gcd(a_1, b_1) = 1$) and, if $a_1/b_1$ is not zero, continue similarly. Given an odd prime $p$ and $1 < a < p$, we prove the existence of infinitely many odd numbers $b$ such that $\gcd(a, b) = 1$, $a < b$, and the sequence of numerators $a_0 := a, a_1, a_2, \ldots$ is $a, a+1, a+2, \ldots, p-1, 1$.