

---- ---- Irrational solutions

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Consider the following equation under the given conditions.

$$R^{1/2} = n^{(k-2)}[S/T] \quad (1)$$

where $S = m^{(k-1)} - Am^{(k-3)} + Bm^{(k-5)} - \dots - k$
(2)

$$T = n^{(k-1)} - An^{(k-3)} + Bn^{(k-5)} - \dots - k \quad (3)$$

$$mn = 1 \quad (4)$$

Condition: R is positive rational but not a perfect square.
k is a prime > 3, A, B, .. divisible by k

Assertion: $m = u^{1/2}$ where u is rational but not a perfect square will satisfy (1)

My argument: $k-2$ is odd and $k-1, k-3, \dots$ are even. Therefore S/T is rational. Since $mn=1$ $n^{(k-2)}$ is irrational of the form $q^{1/2}$ where q is rational but not a perfect square.
This will make left and right sides of (1) consistent.

Helpful comments about the correctness of the assertion will be appreciated

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