

I have read and checked the submitted paper:

A search for patterns in a sequence of numbers:  
proving trends in a recurrence relation

This is a good paper comprising interesting results which merit publication. However, there are some unclear or inadequate descriptions. In the comments below I give some proposals and I have made a “sample”, which would be helpful for the author.

I would like to ask the author to rewrite the paper more clearly and accurately, referring the “sample” that I wrote as an example. Needless to say, this “sample” is not a must.

### Comments for the author

(1) page 1, line 1 (the title) and others : “the sequence of numbers” could be replaced by “the sequence of integers”.

(2) page 1, line 12 and others : “mod  $n + 2$ ” should be wrote as “mod  $(n + 2)$ ”.

(3) page 1, line 12 and others : “the congruence (1)” should be represented by using “ $\equiv$ ”.

(4) page 1, line 14 : The statement “Here  $a \bmod b \cdots 0 \leq f(n + 2) \leq n + 1.$ ” is not common and should be omitted. Instead it would be better to write “ $0 \leq f(n) < n$ ”.

(5) page 1 : In the first example “increase” seems to be replaced by “difference” and “trend” by “property”.

(6) page 1 : We should write the definition of “a solution”.

(7) page 1 : It would be better to classify Examples and (if the author accept,) add a new one, Example 3.

(8) page 2 : We can take Lemmas 1, 2 and 3 together, adding the remaining case  $f(n) > f(n + 1)$  and  $f(n + 1) > f(n + 2)$ , which we need to express the equation with  $S$  in the proof of Proposition.

(9) pages 2 and 3 : Proof of Lemma 1 is incomplete. But the author would easily correct it.

(10) page 3, line 5- : As for Proof of Lemma 4 we need *Proof*. And it would better to add “By Lemma 2” in the beginnig and replace “By Lemma 3” by “By Lemmas 2 and 3”.

(11) page 3 : The content of Propostion seems to be a lemma. The description just before Proposition should be the content, as the sample shows.

(12) page 3, line 21 : The last sentence of Proof of the theorem would be unclear or inadequate. Rather, as the sample shows, we should take new Lemma 2 (ii) to prove the case (iii) of Theorem.

(13) Referee's question: Does every run of a solution has same length ?  
If the author has any comments on this question, he or she should write them in this paper.