

Referees' Reports – 06-0226

Referee #1

This is a nice article. It is a classic case of researchers who have stumbled upon some interesting results that they know others would enjoy, but which are not significant enough to warrant publication in a research journal. I think that the Monthly readers will find this paper intriguing. Section 2 describes how to show that an asymptotic series will have only even or odd powers. I suspect that it will encourage others to search for similar expansions.

That said, this paper is fairly specialized and necessarily gets rather technical once it gets to the proofs. The authors have done a good job of motivating this exploration and putting what's most interesting up front, but it's not going to be an article that grabs readers unless they already have some interest in asymptotic series. In other words, it is worth publishing, but it is not in the category of something that must be published.

The exposition is very good. The authors have written this with the Monthly audience in mind. I have only two changes to recommend:

1. The authors need to be explicit about what they mean by exponentially small terms.
2. The authors need to include more print references. There is nothing wrong with including MathWorld and the Wikipedia, but those are almost the only references.

Referee #2

I think this is a very interesting research paper. I am not sure of the right journal for it. While the results appear to me to be new, they are, nonetheless, closely related to a variety of classical asymptotic results. However, I really do not think that this paper is suitable for the Monthly. It is much too much in the vein of the technical theorem-proof format. I don't think this is what the Monthly is shooting for. So I would recommend that the authors submit to another journal. I am pretty sure that they will eventually be successful in publishing this paper.