Review of: "NSE Characterization of the Orthogonal group O_7(3)"

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Potential competing interests: No potential competing interests to declare.

Review report on:

Title: NSE CHARACTERIZATION OF THE ORTHOGONAL GROUP O_7(3)

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The characterization of finite groups with specific properties is an interesting area of finite group theory. Characterization of finite groups based on the set of numbers of elements with the same order is an active field in the study of finite groups. Specific examples include the sporadic simple groups, some alternating groups, and some projective special linear groups, all of which exhibit this property. This paper builds upon a series of works that investigate finite groups with this property.

The paper is well-written and considers the orthogonal simple group O_7(3). I have some suggestions for the authors to consider.

- Through the paper, “Orthogonal simple group” must change to “orthogonal simple group”.
- At the end of page 1, the authors presented 6 cases that referred to some references. These cases can be collected in a theorem that has 6 cases. For example,

Theorem 1: The following have appeared so far:

1. The two groups A_12 and A_13 are characterizable by order and NSE [4,5],
2. …
3. …

- The proposition, “A finite group G is characterizable by order and NSE; if H is a finite group and |G| = |H| and nse(G)=nse(H), then G=H ”, is not correct in general. We note that there are finite groups which are not characterizable by NSE(G) and |G|. In 1987, Thompson gave an example that was presented in [7].