

MISUNDERSTANDING AND WRITING SIGNS IN MATHEMATICAL PROOF

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ABSTRACT

Mathematical proof is an important ability in studying mathematics. The aim of this research is to find out errors in writing mathematical signs. The mathematical signs or symbols used are related to group proofs. The research method used was qualitative research involving four universities. The research results showed that there were errors in writing signs caused by not knowing the concept of group proof correctly. Writing correct signs in mathematical proof has an important role. Errors in writing mathematical signs can cause the process of mathematical proof to become unclear.

Keywords: Mathematical proof, signs, algebra.

INTRODUCTION

One of the mathematical concepts is mathematical proof. In tertiary level mathematics learning, apart from studying mathematical concepts, mathematical proofs are also taught. Mathematical proof in higher education is applied to several materials, one of which is Group material. The group material contains theorems, definitions and lemmas which are related to each other. This is also supported by learning calculus which has several aspects of mathematical proof.

Some students found difficulty in working on mathematical proofs in Group theory (Doruk & Kaplan, 2015). This difficulty is caused by not understanding the initial concept and then applying it in the proof process. On the other hand, students were also found who could understand the concept well, but the proof process carried out wrote several incorrect signs (Ekayanti & Nasyiithoh, 2018). If the marks written incorrectly can result in the resulting conclusions not being optimal.

METHOD

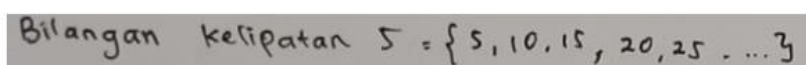
The method used in this research is a qualitative research method involving four universities in Central Java whose students have taken the Group material. After working on questions about group proof, the results of the answers are grouped based on the errors in writing the marks made

by the students. Based on the results of the grouping of answers, interviews were then conducted to support the research results obtained.

FINDINGS AND DISCUSSION

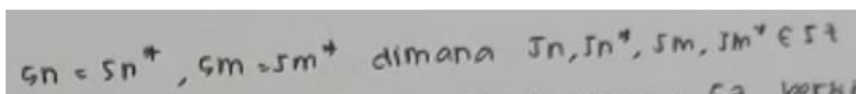
The results of student answers were divided into three groups based on the level of writing errors made. The first group relates to incomplete sign writing which can be observed in Figure 1.

Figure 1:
Errors in writing incomplete marks



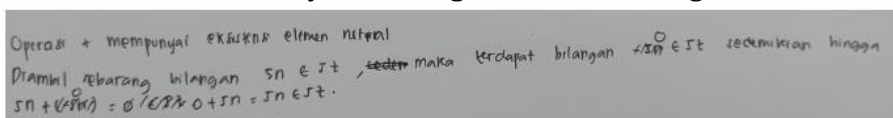
The second group is related to incorrect systematic writing. The systematics of writing incorrect mathematical signs can be observed in Figure 2.

Figure 2:
Writing Systematics Incorrect



The third group is related to carelessness in writing signs in mathematical proofs, causing the flow of mathematical proofs to be unclear. Inaccuracy in mathematical writing can be observed in Figure 3.

Figure 3:
Inaccuracy in writing mathematical signs



Based on the grouping of errors in writing mathematical signs, they are divided into three groups. The first group is errors related to writing incomplete signs. This error is caused because some students do not know the concept of numbers as a whole. Students who study mathematical proof material are expected to be able to master number material correctly. The concept of numbers is often used in the process of mathematical proof, especially algebra.

Errors based on the second group are based on systematic or disorganized flow of evidence. When writing a mathematical proof, what you need to pay attention to is the regularity of the work process. Regularity in the process of mathematical proof can lead to correct conclusions. Systematics in mathematical proof is very important to make it easier for readers to understand the process of mathematical proof.

The third group of errors in writing signs is related to accuracy. Carelessness in writing mathematical proof signs can cause errors in understanding mathematical signs. Each mathematical sign has one

meaning. If the marks written do not match the flow of evidence, it can result in the resulting evidentiary conclusion being incorrect.

CONCLUSION

Errors in writing signs are divided into three groups, namely errors in writing incomplete signs, errors in writing signs that are not systematic and errors in writing signs caused by carelessness. Therefore, it is necessary to improve in working on proof questions correctly. Educators provide appropriate methods or proof steps and clarify the meaning of each sign. This responsibility can be carried out by students as a whole in the process of mathematical proof.

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