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A curious case of superscript (-1) : prospective secondary mathematics teachers explain.

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Summary: In mathematics the same symbol – superscript (-1) – is used to indicate an inverse of a function and a reciprocal of a rational number. Is there a reason for using the same symbol in both cases? We analyze the responses of prospective secondary school teachers to this question. The responses are presented in a form of a dialogue between a teacher and a student and are accompanied with participants' commentary on their choices of instructional approaches. The data show that the majority of participants treat the symbol \square^{-1} as a homonym, that is, the symbol is assigned different and unrelated meanings depending on a context. We discuss how knowledge of advanced mathematics (or lack of it) can guide instructional interaction.

Classification: E40 F50 H40 I20

Keywords: inverse function; reciprocal; script writing; homonymy; polysemy

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