

ZMATH 2016d.00716

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What is the opposite of cat? A gentle introduction to group theory.

Int. J. Math. Educ. Sci. Technol. 47, No. 1, 120-132 (2016).

Summary: This paper has originated from our interest in approaching mathematical concepts starting from people's common-sense intuitions and building up from there. This goal is challenging both in designing the didactical transposition and sequencing of the mathematical subject matter, and in adopting the open and interactive teaching approach needed to achieve students' active participation and reflection. To demonstrate these challenges, and our experience of trying to cope with them, we have chosen the concept of 'inverses' as used in group theory, and its common-sense precursor 'opposites'. We present our approach via a series of workshop iterations, which summarizes our experience in the many actual workshops we ran in Israel and in Denmark.

Classification: H45

Keywords: intuition; group theory; inverses; opposites; bridging; abstraction hurdles

doi:10.1080/0020739X.2015.1049229