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Juan J Arellano* (juan.arellano@tamui.edu), 1220 E. Fremont #8, Laredo, TX 78040. *A Rigorous Reconstruction of Some Concepts in Elementary Algebra for Avoiding Misconceptions*. Preliminary report.

It is common for a mathematics learner make mistakes when working with mathematics. Many of these mistakes could be as of a result of a misconception. Even though there exists research in pedagogy to address student misconceptions, there is a lack of research that address misconceptions mathematically. In the article "Problems with Rational Exponents in Elementary Mathematics" by Terutake Abe and Firooz Khosraviyani, the concept and definitions of the common power notation used in elementary mathematics are discussed with a focus on formalizing an introductory definition and avoiding misconceptions by students and teachers alike. Similarly, a target misconception from G. Donald's article "Misconceptions in Mathematics" will be analyzed and its corresponding concepts rigorously reconstructed with the purpose of avoiding misconceptions. (Received September 23, 2010)