1035-M1-244 **C. L. Greeno*** (greeno@mathematicsinstitute.org), MALEI Mathematics Institute, P.O. Box 54845, Tulsa, OK 74155-0854. *More Linear Algebra for All.*

This is a sequel to the "Linear Algebra for All" presentation at the 2007 Joint Meeting. That one disclosed that the mathematical basis for the "school" arithmetics of Arabic numerals - and for most whole-scalers systems of measurements - is the singly-infinite dimensional vector algebra whose scalers are whole numbers. This extension discloses how the doubly-infinite dimensional, whole-scalers, vector space is the mathematical foundation not only for the arithmetic of decimal-points, but even for the "rational" arithmetic of fractions.

Its disclosure could facilitate major improvements in school mathematics and in teacher education and provide interesting insights for other courses in linear algebra. Although this construction is fundamental knowledge for all teachers of school mathematics or undergraduate mathematics, it is difficult (or impossible?) to find within the literature on mathematical foundations. The contents will be incorporated into the e-book, www.reformingalgebra.org. (Received August 23, 2007)