

1092-97-140

Art Duval* (artduval@math.utep.edu). *Equivalence relations in mathematics, K-16+*. Preliminary report.

Equivalence relations show up at all levels in mathematics from kindergarten to graduate school: regrouping in addition and subtraction; equivalent fractions; equivalent algebraic expressions and equations; vectors; modular arithmetic; row reduction in matrices; cardinality; etc. One reason students may have difficulties with these topics is the subtle difference between “equivalent” and “equal” in these settings. In spite of the centrality of equivalence relations to understanding so many math topics, we don’t explicitly talk about this to students, even to math majors and prospective math teachers, until late in their education, if at all.

I will tie together the common mathematical threads that underlie the various uses of equivalence relations in these diverse settings. My goals are both to encourage you to use these ideas in your own classroom, and also to motivate you to find similar underlying mathematical ideas that run up and down the curriculum. (Received August 06, 2013)