Division of Fractions in Algebra, from real-life applications to abstract equations

Guide for Curriculum Unit 23.03.06, published September 2023
by J. Ulises Reveles

This curriculum unit focuses on word problems whose solution requires the division of fractions in Algebra II for High School 9 to 12 graders. Specifically, this unit aims to teach how to solve real-life applications using one simple algebraic equation, which will require the division of fractions in the problems I will pose to them. Students will learn models of fraction division, i.e., the number line and the rectangular and symbolic models. Particular interest is given to practicing reading and translating word problems into symbolic representations. Developing this skill requires a careful analysis of the information provided, which has to be represented by a set of constants and a variable to be determined. Students will be given the opportunity to work independently and in small groups to explore the given word problems and refine the relevant information to produce the correct equation.

Once the students have reached the equation representing the given problem, they will use the rules of arithmetic to solve it by a general procedure involving fractions division. The students will employ various methods to perform the divisions at this point. They will be encouraged to use and compare the solutions obtained by the different methods and to reflect on which of these they are more confident, sharing with their peers in small group discussions and the entire class at large.

(Developed for Algebra II, grades 9-12; recommended for Algebra I, grades 9-10; Algebra II, grades 9-12; and Precalculus, grades 11-12)