

ZMATH 2015e.00525

Johanning, Debra I.; Mamer, James D.

How did the answer get bigger?

Math. Teach. Middle Sch. 19, No. 6, 344-351 (2014).

Summary: When students begin work with fraction division in fifth grade or sixth grade, they bring with them experiences from whole-number division. Many students think that a division problem should lead to a quotient that is smaller than the dividend. It is also common for students to believe that the dividend should be larger than the divisor. Many, if not most, of the whole-number division problems that students have worked with are of the form $15 \div 5 = 3$ or $666 \div 18 = 37$, where “division makes smaller.” When students begin to study fraction division, it is important that their understanding of division is expanded to address why it is possible to divide two numbers and find a quotient that is larger than either dividend or divisor. Supporting students to develop efficient procedures for fraction division, although important, should not be the only goal. Instruction should also support the development of number and operation sense. Fraction magnitude is a prerequisite for developing such number sense and operation sense. With fractions, number sense includes understanding magnitude or the size of an individual fraction in relation to a whole and in relation to other fractions. With fraction division, understanding what a reasonable quotient might be involves being able to compare the magnitude of the dividend with the magnitude of the divisor when the operation of division is carried out. This article explores both modeling and equivalence as reasoning tools to support students’ developing number sense and understanding of the measurement interpretation of fraction division. (ERIC)

Classification: F43

Keywords: fractions; fraction division; mathematical concepts; concept formation; numeracy; number sense
<http://www.nctm.org/publications/article.aspx?id=40498>