

ZMATH 1995c.01667

Carraher, D.W.

Lines of thought: a ratio and operator model of rational number.

Educ. Stud. Math. 25, No. 4, 281-305 (1994).

A model of rational number is described that exploits the fact that a pair of line segments can embody a ratio of numbers and that actions upon segments can embody arithmetical operations. Tasks are described for bringing out diverse meanings of rational numbers. In the software under development algebraic equations are used for formulating descriptions of the relations among segments and for carrying out operations intended to display geometrically the meaning of the equations. Incorrect hypotheses produce arithmetic inequalities, represented in the model as resultant segments of unequal lengths; correct hypotheses produce resultant segments of equal lengths. None of the tasks discussed can be solved through rote numerical computation but require reflecting upon the relations of quantities. This aspect may be useful in drawing out the relational meaning of rational numbers. (orig.)

Classification: F40

doi:10.1007/BF01273903