

ZMATH 2010d.00392

Gagatsis, Athanasios; Modestou, Modestina; Elia, Iliada; Spanoudes, Giorgos

Structural modelling of developmental shifts in grasping proportional relations underlying problem solving in area and volume.

Acta Didact. Univ. Comen., Math., No. 9, 9-23 (2009).

Summary: This study explores students' abilities in three different dimensions of geometrical problem solving. Students were given a test involving three types of problems on area and volume: usual computation problems, pseudo-proportional problems that beget the application of the linear model, and unusual ones. The structural organization of the reasoning processes behind the solutions was found to vary across grades. This organization indicated a weaker impact of the linear model on older students' reasoning.

Classification: G33 C33 D23

Keywords: illusion of linearity; linear model; geometrical problem solving; structural modelling; tests; pseudo-proportionality; lower secondary; empirical investigations