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Triantafillou, Chrissavgi; Spiliotopoulou, Vasiliki; Potari, Despina

How undergraduate students make sense out of graphs: the case of periodic motions.

Nicol, Cynthia (ed.) et al., Proceedings of the 38th conference of the International Group for the Psychology of Mathematics Education "Mathematics education at the edge", PME 38 held jointly with the 36th conference of PME-NA, Vancouver, Canada, July 15–20, 2014, Vol. 5. [s. l.]: International Group for the Psychology of Mathematics Education (ISBN 978-0-86491-360-9/set; 978-0-86491-365-4/v.5). 273-280 (2014).

Summary: This study aims to explore how undergraduate students in mathematics and engineering professions make sense out of graphs representing periodic and repeated but non-periodic motions. In this study, making sense out of graphs means interpreting graphical features and describing a situation that could be represented by them. The data was collected by means of a questionnaire administered to 132 participants. Our findings indicated both students' misconceptions, as every repeated motion is periodical, and their strong willingness to assign practical meaning to mathematical entities.

Classification: I25 M55 D75
Keywords: undergraduate students; sense making; graphs periodic motions; repeated non-periodic motions; misconceptions