

Limits Problem Solving in Engineering Careers: Competences and Errors

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Abstract : In this article, the performance and errors are featured and analysed in the limit problems solving of a real-valued function, in correspondence to competency-based education in engineering careers, in the south of Chile. The methodological component is contextualised in a qualitative research, with a descriptive and explorative design, with elaboration, content validation and application of quantitative instruments, consisting of two parallel forms of open answer tests, based on limit application problems. The mathematical competences and errors made by students from five engineering careers from a public University are identified and characterized. Results show better performance only to solve routine-context problem-solving competence, thus they are oriented towards a rational solution or they use a suitable problem-solving method, achieving the correct solution. Regarding errors, most of them are related to techniques and the incorrect use of theorems and definitions of real-valued function limits of real variable.

Keywords : engineering education, errors, limits, mathematics competences, problem solving

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