The TAWA Method: Demonstration of the Alternative Method (Arithmetic Algorithm) to the Fundamental Formulas for the Solution of Problems and Definition of Concepts of Uniformly Accelerated Linear Motion (UALM)

In this research, a new method for solving problems and defining concepts of Uniformly Accelerated Linear Motion (UALM) is developed, without making direct use of the basic kinematic formulas. The method used allows the deduction of the concepts of time, distance, speed and acceleration starting by relating the variation of the variables (through the Tables) according to the movement that is taking place. The algorithm is presented in a system of four tables and is called TAWA since the word in Quechua (main native language of Peru) means four. When comparing the TAWA method to basic formulas, and although the TAWA method is longer, the TAWA method can be considered more simple because only need four basic arithmetic operations are needed. The method does not need equations to be cleared. It break downs movement into process and hypothetical cases useful for its conceptualization. From what has been explained so far, it can be concluded that it is feasible to develop an arithmetic algorithm that gives the same outcomes as the basic formulas of ULM and UALM in the solving of problems, with the exception of the case in which time is both a fraction and an unknown variable at the same time. It should be mentioned that the algorithm has been programmed in a mobile application for the Android operating system.

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