1159-49-26 **Andrew M Pownuk*** (ampownuk@utep.edu), Department of Mathematical Sciences, The University of Texas at El Paso, 500 West University Avenue, El Paso, TX 79968. *Solution of Algebraic Equations by Using Autonomous Computational Methods.*

In order to find the answers to the qualitative research questions which are described by algebraic equations it is necessary to find exact or approximate solutions of appropriate algebraic equations. Solution method (if exists) is determined only by available algebraic operations and the form of given equation. Finding a solution by using only algebraic properties without knowing any prior knowledge about the solution procedure is a very complex mathematical problem. By using autonomous computational method, it is possible to find a step-by-step solution of selected algebraic equation by using information only about algebraic operations and the form of the equations. Selected results will be presented. Solutions created by the computational algorithms can be used in the future calculations in order to solve future mathematical problems. In some cases, it is possible to speed up the calculations by using machine learning techniques. Autonomous computational methods can be applied for autonomous development of scientific theories which are based on finite number of mathematical operations. Autonomous computational methods reduce the number of possible errors and allow processing of large amount of scientific data in large scale, parallel, and distributed way. (Received July 05, 2020)