



## DEVELOPING EXCEL VBA FUNCTIONS FOR THE MATHEMATICAL MODELING OF THREE-DIMENSIONAL VECTORS

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### ABSTRACT

The current computer support for operations involving three-dimensional vectors is insufficient, even in widely used programs like Excel. These programs lack customized features specifically designed for vector operations. However, this limitation can be overcome by utilizing the options provided by Visual Basic for Applications. By creating user functions, we can effectively calculate various results related to the mathematical application of vectors. These functions include determining the magnitude and absolute value of a vector, calculating the angle between two vectors or the cosine of that angle, finding the scalar product and vector product of two vectors, as well as evaluating the mixed product of three vectors. By incorporating these custom functions into the spreadsheet program, users can easily perform mathematical calculations pertaining to three-dimensional vectors.

*Keywords: Excel VBA, programming, vector operations*