

DESIGNING AN EXCEL VBA FUNCTION TO RECOGNIZE MORE IMPORTANT IRRATIONAL NUMBERS

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ABSTRACT

In our work, we typically perform calculations on a calculator or computer, which show the result as a decimal fraction if it is not an integer. However, it would be much easier to interpret the result if a value could be expressed in integers using some operations, such as the root subtraction operation. Using the Microsoft Excel spreadsheet, we have the opportunity to do so with our algorithm developed during our research, which recognizes the most important irrational numbers and displays them in text form together with the character of the operation sign. For example, the text form " $5\sqrt{3}/2$ " is given for 4.330127019. It is also useful to display irrational numbers with integers because only an infinite number of decimal places in a decimal fraction could show the exact value, which is obviously not possible. So we get a shorter, more interpretable and accurate form of the number. In addition to the results that can be written as square roots, our algorithm can display irrational numbers that can be expressed as the number Pi using the π character, but it can show all rational numbers as the quotient of two integers that are relative primes. The programming was implemented with the Visual Basic for Applications feature of Excel, so we created a function that can be used in the usual way in Excel.

Keywords: irrational number, Excel VBA, programming, function, root recognition