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A SIMPLE SOLUTION TO DIOPHANTINE EQUATIONS- FOURTH POWER

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Abstract: In this research paper, a method has been devised to solve some Diophantine equations of fourth power. To begin with, an integer is expressed as an algebraic quantity, then utilising these algebraic quantities, a quartic Diophantine equation is written as an algebraic equation of fourth power with real and rational coefficients. The quartic is, then reduced to a linear equation that gives straightway solution. The process of reduction of the quartic to linear equation entails some conditions which are incorporated in the solution. Last, use of elementary and only elementary functions makes this paper easily comprehensible to scholars and students alike.

Keywords and Phrases: Integers, Rational Quantity, Quartic, Linear, Diophantine Equation.

2020 Mathematics Subject Classification: 11D25.

1. Introduction

A Diophantine equation of fourth power is traditionally written as $4.q.r$ equation where first figure 4 denotes its power, second figure q its number of terms in right hand side RHS or left hand side LHS whichever is less and third figure r its number