

Simultaneous Pell equations

ABSTRACT

This paper will discuss the solutions on the simultaneous Pell equations $x^2 - my^2 = 1$ and $y^2 - 11z^2 = 1$ where m is square free. By looking at the pattern of the solutions, some theorems will be developed. The solutions to these simultaneous equations are $(x, y, z, m) = (50i - 1, 10, 3, mi)$ and $(50i + 1, 10, 3, mi)$ for some expressions of mi where i is natural number.

Keyword: Diophantine equations; Parity; Simultaneous Pell equations