

## 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