ON FOUR TUPLE OF DISTINCT INTEGERS SUCH THAT THE SUM OF ANY TWO OF THEM IS CUBE OF A POSITIVE INTEGER

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Abstract: In this article we have discussed determination of distinct positive integers a, b, c, d such that $a + b, a + c, b + c, a + d, b + d, c + d$ are cubes of positive integers with
(i) at least three numbers, say a, b, c are positive.
(ii) all four numbers a, b, c, d are positive.
We can obtain infinitely many four tuples from a single four-tuple.

1. Introduction

Number theory holds a distinguished position in mathematics for its many results which are profound and yet easy to state. Many of the problems in Number Theory arise from the role of addition and multiplication. One important class of such problems in which numbers can be expressed as sum of some numbers defined multiplicatively. This gives rise to the Pythagorean numbers, triangular numbers,