

1036-11-185

Susil Kumar Jena* (susil_kumar@yahoo.co.uk), Professor, Dept. of Electronics and Telecom Engineering, KIIT University, Bhubaneswar, Orissa 751024, India. *Method Of Infinite Ascent Applied On $mA^6 + nB^3 = C^2$.*

Sometimes a Diophantine equation possessing an infinite number of integral solutions does not exhibit this infinitude characteristics as seen in its original form. Putting into a slightly modified form, which we need to discover, this equation becomes regenerative so that any set of solution for the equation will lead to the next set of solution for the same; the first set leading to the second, the second set leading to the third and so on without end. This is a regenerative technique which we wish to call the Method of Infinite Ascent(MIA), explicitly showing on how to generate the endless set of integral solutions for the Diophantine equation. In this paper we will use the Method of Infinite Ascent to find infinite number of integral solutions for the Diophantine equation $mA^6 + nB^3 = C^2$ with m, n ,A, B and C as integers and A, B, C pair-wise co-prime. In addition to this many fundamental results relating to this equation will be obtained. (Received January 22, 2008)