1047-11-6 **Hung-ping Tsao*** (hptsao@hotmail.com), 1151 Highland Drive, Novato, CA 94949. *Powered sum formulas via term-wise integrations: a geometric point of view.*

We shall apply the established method for the natural sequence to more general cases such as S(2n-1;k), the k-powered sum of 1,2,4,5,7,8,...,3n-2 and S(2n;k), the k-powered sum of 1,2,4,5, 7,8,...,3n-2,3n-1, where S(2n-1;1)=[3,-3,1], the quadratic polynomial with coeffcients 3,-3,1 and S(2n;1)=[3,0,0]. Let I(S(2n-1;k)) and I(S(2n;k)) be the integrals of S(2n-1;k) and S(2n;k) with respect to n, respectively. Then we can use mathematical induction to prove that S(2n-1;2)=6I(S(2n-1;1)+cn+d and S(2n;2)=6I(S(2n;1))+cn (d=0, in the case that the 1-powered sum is a quadratic polynomial without constant term), where c and d can be determined by taking different values of n. Thus we can obtain S(2n-1;2)=[6,-9,6+c,d], where c and d can be determined by solving 1=6-9+6+c+d and 1+4+16=48-36+12+2c+d so that S(2n-1;2)=[6,-9,5,-1]. Likewise, S(2n;2)=[6.0.-1,0]. We can then obtain S(2n-1;3)=9I(S(2n-1;2))+[c,d]=[13.5,-27,22.5,-9,1] and S(2n;3)=9I(S(2n;2))+[c,0]=[13.5,0,-4.5,0,0]. The most general sequences that this method can be applied to is when the sum of the first an+b terms of which is a quadratic polynomial, because it is equivalent to term-wise integrations justifiable by the fact that the volume of a k dimensional cube is the integral of its surface area with respect to the side. (Received September 19, 2008)