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Hung-ping Tsao* (hptsao@hotmail.com), 1151 Highland Drive, Novato, CA 94949. *Expressing the k th power sum of the nature numbers as a polynomial in the first power sum.*

Set $S=S(1)$, where $S(k)$ is the sum of the k th powers of $1, 2, 3, \dots, n$. It is well-known that $S(3)$ is the square of S , namely $CS(3)=(1,0,0)$, where $CS(2k-1)$ is the coefficient $(k+1)$ -tuple of the polynomial in S for $S(2k-1)$. From $CS(5)=(4/3, -1/3, 0, 0)$, $CS(7)=(2, -4/3, 1/3, 0, 0)$, $CS(9)=(16/5, -4, 12/5, -3/5, 0, 0)$, $CS(11)=(16/3, -32/3, 34/3, -20/3, 5/3, 0, 0), \dots$, we form a triangular array TO. We also have $S(4)/S(2)=(6/5)S-1/5$. Let $C(S(2k)/S(2))$ denote the coefficient $(k-1)$ -tuple of the polynomial in S for $S(2k)/S(2)$. From $C(S(6)/S(2))=(12/7, -6/7, 1/7)$, $C(S(8)/S(2))=(8/3, -8/3, 6/5, -1/5)$, $C(S(10)/S(2))=(48/11, -80/11, 68/11, -30/11, 5/11), \dots$, we form another triangular array TE. Among other things, we found a keen relationship between TO and TE. (Received June 22, 2009)