1051-11-7 **Hung-ping Tsao*** (hptsao@hotmail.com), 1151 Highland Drive, Novato, CA 94949. *Second generation Stirling numbers.*

For a sequence Q in a commutative ring, we define the Stirling number s(n,k;Q) of the first kind with respect to Q as the sum of products of k numbers among the first n terms of Q with s(n,0;Q)=1 and the Stirling number S(n,k;Q) of the second kind with respect to Q to be S(n,k;Q)=s(n-k+1,1;Q)S(n,k-1;Q)- s(n-k+2,2;Q)S(n,k-2;Q)+...with the last term being s(n,n;Q) for odd k and -s(n,n;Q) for even k and S(n,0;Q)=1. We shall only consider s(n,k;a,d) and S(n,k;a,d) with respect to an arithmetic progression (a+(n-1)d). Based on s(n,k;a,d)=s(n-1,k;a,d)+ [a+(n-1)d]s(n-1,k-1;a,d) and S(n,k;a,d)=S(n-1,k;a,d)+[a+(n-k)d] S(n-1,k-1;a,d), we shall express Stirling numbers as linear combinations of binomial coefficients. The triangular arrays of coefficients in such linear combinations will be called second generation Stirling numbers. For example, s(n,1;a,d)=S(n,1;a;d)= dC(n,2)+aC(n,1), s(n,2;a,d)=3ddC(n+2,4)+d(3a-4d)C(n+1,3)+(a-d)(a-d)C(n,2) and S(n,2;a,d)=3ddC(n+1,4)+d(3a-2d)C(n+1,3)+(a-d)(a-2d)C(n,2). We shall derive recursive formulas which will enable us to generate the second generation Stirling numbers of both kinds. They are the same except for the sign only when a=d=1. (Received March 03, 2009)