William Gasarch and Naveen J Raman* (nav.j.raman@gmail.com), 15510 Villisca Terrace, Derwood, MD 20855. Three Results on making change (An Exposition).

Let $a_1 < \cdots < a_L$ where $a_1, \ldots, a_L$ be relatively prime. Let $M = \text{LCM}(a_1, \ldots, a_L)$ and $M' = \text{LCM}(\text{GCD}(a_1, a_2), \ldots, \text{GCD}(a_{L-1}, a_L))$. Assume that $a_1, \ldots, a_L$ are denominations of coins. Let $CH(n)$ be the number of ways to make change of $n$ cents. We give a unified exposition of the following three known results: (1) For all $0 \leq b \leq M - 1$ if $CH(n)$ is restricted to $n \equiv b \pmod{M}$ then $CH(n)$ is a polynomial; (2) For all $0 \leq b \leq M' - 1$ if $CH(n)$ is restricted to $n \equiv b \pmod{M'}$ then $CH(n)$ is a polynomial except for the constant term; (3) $CH(n) = \frac{n^{L-1}}{(L-1)!a_1a_2\cdots a_L} + O(n^{L-2})$. (Received September 04, 2015)