Abstract: It is well-known that the sum of integers from 1 to $n$ is

$$1 + 2 + \ldots + n = \frac{n(n + 1)}{2}$$

But what happens when we add these sums together? Do we have a closed form formula for $\sum_{i=1}^{n} \sum_{j=1}^{i} j = 1 + 3 + 6 + \ldots + \frac{1}{2} n(n+1)$? Moreover, what happens if we keep taking the sum of the sums? In general, we will attempt to find a closed form formula for

$$\sum_{a_1=1}^{n} \sum_{a_2=1}^{a_1} \ldots \sum_{a_m=1}^{a_{m-1}} a_m$$

We will then look at higher power of integers and repeat the process. Would we have a nice closed form formula for

$$\sum_{a_1=1}^{n} \sum_{a_2=1}^{a_1} \ldots \sum_{a_m=1}^{a_{m-1}} a_m^k$$

for any positive power $k$? The technique used in finding these sums can be used to find a formula for the partial sum of many well-known sequences. It can also be used to count the number of lattice paths under some special conditions. (Received August 16, 2015)