

1106-05-794

**Jonathan DeWitt\*** (jdewitt@haverford.edu). *Longest Increasing Subsequences of Multiset Permutations.*

The expected length of the longest increasing subsequence of a random permutation has been well studied. We generalize this problem to the case of a random permutation of a multiset consisting of  $k$  copies of the numbers 1 through  $n$ . We give a soft argument to show that this limit exists and is  $\Theta(\sqrt{n})$  in the case of strictly increasing subsequences. We show that in the case of two copies of each letter the expected length of either the longest strictly increasing subsequence or the longest weakly increasing subsequence is  $2\sqrt{2}\sqrt{n}$ . We then show how this problem can be further generalized in terms of the height of a poset intersected with a random linear order. (Received September 06, 2014)