Problem Set 2

When merging two lists A and B, each of size n, we say that we have a perfect shuffle if the two indices in the merge take turn being incremented: for example, $A = 1, 5, 9$ and $B = 2, 7, 13$. Can you construct a list of n integers for which mergesort creates a perfect shuffle at *each* merge? (You might want to work out a few small examples for illustration, such as $2, 5, 3, 9$, but your answer should give a formula for producing such a list for any n of the form 2^k. In other words, given any m ($1 \leq m \leq n$) your formula should allow us to compute the m-th number in the list.

Due: at precept on Feb.21/22