

Turn in Section 5 of the NP-completeness homework separately.  
Both assignments will be turned in on ELMS.

1. (a) Assume you have an alphabet of letters from “i” though “r”. Illustrate the operation of radix sort on the following list of twelve English words:  
mojo, join, kiln, noon, nori, loin, loon, lion, roil, pool, loop, moon  
(b) Use “mojo”, “nori”, and “roil” in one or two English sentences that show that you understand the meaning of all three words.
2. Recall that radix sort for  $n$  words in the range  $0, \dots, S-1$ , using radix  $R$ , takes  $\Theta(\frac{\log S}{\log R}(n+R))$  time. In class we showed that setting  $R \approx \frac{n}{\ln n}$  minimizes the time. Assume that your goal is to maximize the time, what should the radix be? If your answer involves a relationship between just  $n$  and  $S$ , write the relationship with  $S$  as a function of  $n$ . You may assume that  $S \geq n$ .