GROUP WORK PROBLEMS

(1) Prove: Given any 11 real numbers, there are at least two among them whose decimal expansions agree in infinitely many spots.

(2) A game starts with two piles of p and q stones. Players A and B take turns starting with A. In each turn a player has to remove one pile and divide the other one into two new piles. The first player who cannot complete a full move loses. For which values of p and q can A force a victory, for which can't he?

Date: August 28, 2006.