

## Homework 7 extra problems

(You can print this page out and write on it if you don't want to copy all these lists onto your homework paper)

**Question 1.** *A*, *B*, *C*, and *D* are dividing up this list of 90 letters using the method of markers. *A* likes only consonants (including *y*). There are 73 consonants in this list. *B* likes only letters in the first half of the alphabet (*A* through *M*, there are 53 of them in this list), and *C* likes all letters equally. *D* likes only vowels (not including *y*). Here are the letters that they are dividing:

rupstsr moum phkafdnimzqyacjqdkslkhiymwpakluzdvyyjyhilhhhcnaucjciqjggugaweynfckzgzkdgtfmxjsk

Use the method of markers to decide who gets what letters, and which are left over.

**Question 2.** *A*, *B*, and *C* are dividing up this bunch of pogs (*P*) and frogs (*F*). (There are 20 of each in this list here.) *A* thinks that the pogs are worth 2¢ each, and the frogs are worth 1¢ each. *B* likes only the pogs. *C* thinks that they all have the same value. Here is the list of stuff:

P P F P F P P P F P P P F F F F P F F F F P P F F F P P P F F P P P P

Use the method of markers to decide who gets what, and which are left over.

*Hint:* to figure out where to place the markers for *A*, notice that there is 60¢ of total value here ( $20 \times 2\text{¢}$  for the pogs, plus  $20 \times 1\text{¢}$  for the frogs). So *A* should place markers to get about 20¢ in each portion.