HW6, extra problems

A. In any reasonably well-known programming language, write a program that prints out its own source code **in reverse** (reversing byte order, not word or line order) when executed. You may not use any functions actually accessing the OS's copy of the program in memory or the in the filesystem, and you should not need to pass in crucial information from the command line. It should go without saying that you should not use programs written by others that perform a similar task.

B. Show that, for any two languages A and B, a language J exists such that $A \leq_M J$ and $B \leq_M J$. (Note: this is similar to problem 6.7 in Sipser, but modified to use mapping reductibilities instead of Turing reducibilities, since we haven't covered the latter yet)

C. (*) Use the Recursion Theorem to prove that the following language is undecidable:

$$C = \{\langle M, w\rangle | M, \text{ when run on input } w, \text{ does not enter any given configuration more than once}\}$$