

## Homework

**Problem 1.** Which of these things are groups?

(a) Even numbers, with addition

(b) Even numbers, with multiplication

(c) Permutations that don't move the number 4

(d) Rubik's Cube moves, where the way of combining is "do this move first, then that move"

(e) Words (not just English words) without double letters, where the way of combining is to write the words next to each other then delete all pairs of double letters.

(For example, if you combine "ARCHEOPTERYX" and "XYZ", you get "ARCHEOPTERYXXYZ", which becomes "ARCHEOPTERYYZ" which becomes "ARCHEOPTERZ".)