Problem Solving Strategies Pt. 1

For every problem:

1) Solve the sample input by hand
2) Find a brute force algorithm
    - This algorithm must be correct, but could be too slow, too much memory, etc.
    - Calculate the runtime. If it is fast enough, implement it
    - If it isn't fast enough, try to optimize it by moving to step 3
3) Create 6-7 test cases of size N=6 or N=7 and solve them by hand. Try to find patterns as to how you solved them
    - You are not "stuck" on a problem until you complete this step
4) Simplify the problem down
    - **A simplification is good if you know you cannot solve the original problem if you cannot solve the simpler problem**
    - Removing an annoying part of the problem
    - Asking a question about a small part of the problem
    - If you have a good simplification of the problem, the odds you solve the problem raise drastically
    - Once you have a simplified problem, ignore the original problem, it's like the original problem never existed
5) Repeat step 3 with the simplified problem.
6) Repeat step 4 to find different simplified problems.
7) Repeat steps 5 and 6 until you have a solution.

Apply to some problems:

- Sort first, think second
    - Sort by everything (forwards, backwards, start value, end value)