12742   Mining in Starcraft

In Star Craft, there are two main resources: minerals and vespene gas ("gas" for short).
    You can ask SCVs to mine minerals and collect gas.

- If a "mineral" command is given to an SCV, it can get 8 units of minerals after t_1 unit time.

- If a "gas" command is given to an SCV, it can get 8 units of gas after t_2 unit time.

You can only give a command to an SCV after its previous command is finished.
    You can build new SCVs, each costing 50 units of mineral and takes t_3 unit time. Those minerals are consumed at the beginning of the process, and you can build at most one SCV at a time (i.e. you cannot start building another SCV before the previous SCV is finished).
    Initially, you have 50 units of minerals and 4 SCVs. Your task is to have at least p_1 units of minerals and at least p_2 units of gas, as soon as possible.

Input

Each test case contains 5 integers t_1, t_2, t_3, p_1, p_2 ($1 \le t_1, t_2, t_3 \le 10$, $0 \le p_1, p_2 \le 100$). The last case is followed by $t_1 = t_2 = t_3 = p_1 = p_2 = 0$, which should not be processed. There will be at most 1000 test cases, all are randomly generated.

Output

For each test case, print the shortest time T in the first line, followed by the plan (if multiple optimal plans exist, any will do). Each line in the plan has 3 kinds of format:

- t 0 — build a new SCV at time t

- t i 1 — give "mineral" command to the i-th SCV.

- t i 2 — give "gas" command to the i-th SCV.

    Print a blank line after each test case, including the last test case.
    SCVs are numbered 1, 2, 3, . . . Initial SCVs are numbered 1..4, newly built SCVs are numbered in the same order they're built.

Important: At time T, all the SCVs must be idle, and there should be no SCV being built.

Sample Input

```
10 9 8 0 10
4 10 9 32 72
0 0 0 0 0
```

Sample Output

```
Case 1: 9
0 1 2
0 2 2

Case 2: 24
0 0
0 1 1
0 2 1
0 3 1
0 4 1
4 1 2
4 2 2
4 3 2
4 4 2
14 1 2
14 2 2
14 3 2
14 4 2
14 5 2
```