

7214 Arithmetical CAPTCHA

As a distinguished professor in Better Institute for No-more-spam Universal System (BINUS), Winata invents a new system for detecting intelligent-enough beings that enter comments into your site. He calls this system Arithmetical CAPTCHA. As you might already know, CAPTCHA is an acronym for “Completely Automated Public Turing test to tell Computers and Humans Apart”; it’s a test to determine whether the user is human or not (e.g., bot).

The main idea is that he’d like to test the arithmetical prowess of a visitor before that visitor can place a comment on an internet article. So the system shows the visitor 4 integers: n_1, n_2, n_3, n_4 . The visitor needs to determine 3 operators: $op_1, op_2, op_3 \in \{+, -, =\}$ such that when the statement

$$n_1 \ op_1 \ n_2 \ op_2 \ n_3 \ op_3 \ n_4$$

is read in one line, it makes a perfect arithmetical sense. Note that the operator should be either addition (+), subtraction (-), or equality (=). There should be at least one equality operator (=) among those three operators.

For example, let $n_1 = 1, n_2 = 5, n_3 = 4,$ and $n_4 = 1,$ then a statement like

$$1 = 5 - 4 = 1$$

makes a perfect arithmetical sense, i.e. 1 equals to 5 subtracted by 4 ($5 - 4$), and it also equals to 1. Your task in this problem is to beat this Arithmetical CAPTCHA by providing the answer to each input.

Input

The first line of input contains an integer T ($T \leq 100$) denoting the number of cases. Each case contains four integers: n_1, n_2, n_3, n_4 ($1 \leq n_i \leq 1,000$) in a line.

Output

For each case, output ‘Case # X : $n_1 \ op_1 \ n_2 \ op_2 \ n_3 \ op_3 \ n_4$ ’ (without quotes) in a line where X is the case number (starts from 1), and $op_1, op_2, op_3 \in \{+, -, =\}$. There should be at least one equality operator (=) among op_1, op_2 and op_3 . All the numbers and operators in the output are separated by single space. If there are multiple solutions, output any of them. You may safely assume that there is at least one solution for each case.

Note: Explanation for 4th sample case

Another possible and correct solution for this case is $5 = 5 = 5 = 5$, and there are also others. You only need to output one correct solution.

Sample Input

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4
1 5 4 1
3 7 12 2
40 3 11 26
5 5 5 5
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Sample Output

Case #1: $1 = 5 - 4 = 1$

Case #2: $3 + 7 = 12 - 2$

Case #3: $40 = 3 + 11 + 26$

Case #4: $5 + 5 - 5 = 5$