Elements of Three Sets

You are given three finite sets A, B and C. Can you calculate the size of the union of these sets, i.e. $A \cup B \cup C$? Of course there are many ways to calculate this, but in this problem, we will use the *inclusion-exclusion principle* and check whether it is right. For three sets A, B, C,

$$|A \cup B \cup C| = |A| + |B| + |C| - |A \cap B| - |A \cap C| - |B \cap C| + |A \cap B \cap C|$$

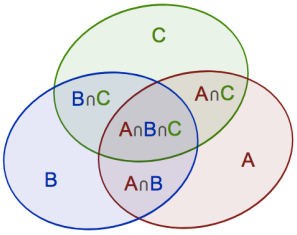

Figure 1: Inclusion–exclusion illustrated by a Venn diagram for three sets

always holds, where $|S|$ indicates the size of the set S.

To test whether the equation is right or not, you are trying to calculate the values of $|A|$, $|B|$, $|C|$, $|A \cap B|$, $|A \cap C|$, $|B \cap C|$ and $|A \cap B \cap C|$, substitute into the equation above, and check whether it is equal to $|A \cup B \cup C|$ or not. But this is a very boring job, so you are to make a program that, given the sets A, B, C, does this job for you.

Input

Your input consists of an arbitrary number of records, but no more than 50. Each record starts with a line containing $|A|$ and the elements of set A, separated by spaces. The next line contains $|B|$ and the elements of set B, separated by spaces. The last line contains $|C|$ and the elements of set C, sepatated by spaces. The size of each set ranges from 0 to 100, and the elements of each set are distinct positive integers which are at most 1 000.

The end of input is indicated by a line containing only the value -1.

Output

For each record, print the equation in the form "`P = Q + R + S - T - U - V + W`", where `P` $= |A \cup B \cup C|$, `Q` $= |A|$, `R` $= |B|$, `S` $= |C|$, `T` $= |A \cap B|$, `U` $= |A \cap C|$, `V` $= |B \cap C|$, and `W` $= |A \cap B \cap C|$.

Example

standard input	standard output
3 1 2 5 4 2 4 5 7 2 2 6 1 1 1 2 1 3 2 1 2 0 1 2 -1	6 = 3 + 4 + 2 - 2 - 1 - 1 + 1 3 = 1 + 1 + 1 - 0 - 0 - 0 + 0 2 = 2 + 0 + 1 - 0 - 1 - 0 + 0

Time Limit

2 seconds.