



4937 - T-shirt Size Distribution

North America - Southern California - 2010/2011

The staff of Swamp County College were well into their eleventh year of hosting a regional computer programming contest when they realized they were running out of time to prepare t-shirts for the contest day. For the previous ten years, the staff had always purchased shirts after the registration period closed, buying just enough shirts and assigning each school a shirt color from its school colors. Alas, this year the t-shirts had to be purchased prior to the closing of registration.

Although the staff could not predict which schools would enter, they could make a good estimate of projected attendance by the day they had to commit to a t-shirt contract. The staff decided that this year a single shirt color would be used, with the shirt order from the year with highest attendance as a good representation of the distribution of sizes. On the day the t-shirt order is due, the staff will project the expected attendance and scale the order according to the size distribution.

Your team is to write a program that takes representative distributions of shirt sizes, and given the projected attendance, produces t-shirt counts for each size.

Input

Input to the program is a series of lines of text, each containing eight integers separated from each other by single spaces. The first seven values represent the number of t-shirts previously purchased, n_i , corresponding to sizes XS, S, M, L, XL, XXL, and XXXL, respectively. Summing the first seven values, $N = \sum n_i$, yields the total number of shirts previously ordered. The eighth value is P , the projected attendance. Input is terminated by the end-of-file.

Scale the t-shirt size counts,

$$p_i = \frac{P n_i}{N}$$

where the floor function $\lfloor x \rfloor$ gives the largest integer less than or equal to x . It is likely that the above computation of p_i will produce a shortage of t-shirts, $S = P - \sum p_i$, that is greater than zero. In this case, from smallest (XS) to largest (XXXL), start filling empty size counts ($p_i=0$) with one shirt until $S=0$ or there are no empty size counts. If there is still a shortage, purchase additional shirts at size XL to force $S=0$.

N and P are guaranteed to fit in a 32-bit signed integer.

Output

For each line of input, print a line containing the integer values p_i , for sizes XS, S, M, L, XL, XXL, and XXXL respectively. Separate the values from each other by single spaces. No leading or trailing whitespace is to appear on an output line.

Sample Input

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0 7 14 42 18 0 3 41
0 1 9 31 50 16 5 123
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Sample Output

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1 3 6 20 9 1 1
1 1 9 34 56 17 5
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