

## Problem D

The expression " $\text{sqrt}(12) + \text{sqrt}(48)$ " can be simplified as follows:

$$\begin{aligned}\text{sqrt}(12) + \text{sqrt}(48) &= \text{sqrt}(4*3) + \text{sqrt}(16*3) = 2*\text{sqrt}(3) + 4*\text{sqrt}(3) = \\ &6*\text{sqrt}(3) = \text{sqrt}(36*3) = \text{sqrt}(108)\end{aligned}$$

Given a list of integers, A, return a second list of integers, B, such that the sum of the square roots of the elements in B equals the sum of the square roots of the elements in A. B should contain as few elements as possible. The list with the fewest elements is guaranteed to be unique. The elements in your returned list B should be sorted from smallest to largest.

A will be given as a `int[]`. Return B as a `int[]` also.

For example, given the integers 9, 16, 25, the sum of the square roots is  $3 + 4 + 5$ , which is 12. The sum of the square roots of the list [121, 1] is also 12, but there is an even shorter list: [144], which is the correct answer.

- A will contain between 1 and 50 elements, inclusive.
- Each element of A will be between 1 and 1000, inclusive.

See examples for input/output format.

D.IN

```
1
2
12 48
```

D.OUT

```
1
108
```