# Tiles Master

*Summer is coming which means it's that time of the year when everybody is renovating their home…*

Victoria wants to renovate her apartment, too. She's starting with the kitchen and she has hired a handyman to put **new tiles** on the **walls** and the **floor**. She wants a modern kitchen and she has bought fancy tiles, which must be put in an **exact order** and **locations** to achieve the glamorous look of the kitchen that she expects.

Unfortunately, the **tiles** come in **different sizes and colors**, and your task is to help Victoria and the handyman Vanko **place them in the right order** and **location** in the kitchen.

First, you will be given **a sequence of numbers, representing the areas of the white tiles**. Afterward, you will be given another **sequence, representing the areas of the grey tiles.**

You **start** from the **first** **grey** tile and compare its **area** to the **area** of the **last** **white** tile.

If their **areas** are **equal**, **together they form a new larger tile**, that the handyman will be able to use. After that, you should check whether the **area of the new-formed tile matches** one of the numbers in the **table** **below** (the numbers correspond to a particular **location** in the kitchen). The **area** of the **new** **tile** is formed by **summing** the **areas** of the **white** and the **grey** tile.

If the **area of the new-formed tile matches** the necessary area tile for any of the locations in the kitchen, you should remove both the grey and white tiles from the sequences. If the **area doesn't match** any of the specified **locations**, the **new tile** will be used for a location, named **Floor**.

If their **areas don't match at all**, you take the **white** tile, **decrease its area in half** and insert it **back** in**to the sequence**. After that, you **change the grey tile position by putting it at the back of the sequence**.

|  |  |
| --- | --- |
| **Location** | **Tile area needed** |
| Sink | 40 |
| Oven | 50 |
| Countertop | 60 |
| Wall | 70 |

**Compare** all of the **areas** while **keeping track of the tiles** that will be **used** for the particular **locations** in the kitchen. You stop **comparing** them in case the handyman is both **out of white and grey tiles** or in case **any one of them is out**. Finally, **print** the **number** of tiles that will be used for the **different** locations.

## Input

* On the **first line**, you will receive the areas of the white tiles, **separated** by a **single space (**' '**)**.
* On the **second line**, you will receive the areas of the grey tiles, **separated** by a **single space (' ')**.

## Output

* On the **first** line – print all white tiles you have left:
  + If there are no white tiles left: "**White tiles left: none**"
  + If there are white tiles left: "**White tiles left: {whiteTile1}, {whiteTile2}, {whiteTile3},** **(…)**"
* On the **second** line - print all grey tiles you have left:
  + If there are no grey tiles left: "**Grey tiles** **left: none**"
  + If there are grey tiles left: "**Grey tiles** **left: {greyTile1}, {greyTile2}, {greyTile3},** **(…)"**
* Then**,** you need to print **only the locations in the kitchen that will be decorated with the new-formed tiles (including the floor),** and the count of new tiles that will be used for them. The locations must be ordered descending by number (count of new tiles per location) and then sorted ascending alphabetically.
  + **"Countertop: {amount}"**
  + **"Floor: {amount}"**
  + **"Oven: {amount}"**
  + **"Sink: {amount}"**
  + **"Wall: {amount}"**

## Constraints

* All of the given numbers will be valid integers in the range **[0…200]**.
* There will be **no** case where the white tiles' area reaches 0.
* The areas of the white tiles that must be divided in half will **always** be **even** numbers.

## Examples

|  |  |  |
| --- | --- | --- |
| ****Input**** | ****Output**** | ****Comment**** |
| **35 16 30 3 25 9 20**  **20 9 25 3 30 16 35** | **White tiles left: none**  **Grey tiles left: none**  **Floor: 3**  **Countertop: 1**  **Oven: 1**  **Sink: 1**  **Wall: 1** | We start by taking the area of the last white tile and comparing it to the area of the first grey tile – 20. They are equal, so we form the new tile by summing the areas of both tiles (20 + 20 = 40). After that, we check if there is a location that requires a tile with an area of 40. There is such a location, so we added the new tile to the collection with new-formed tiles and removed both the white and the grey tiles.  Next, we have 9 (area of the next white tile) and 9 (area of the next grey tile). They are equal, so we check if there is a location that requires a tile with an area of 9 + 9 = 18. There is no such location, so the tiles will be used for the **floor** and we add it to the collection with new-formed tiles. Again, we removed both the white and the grey tile, because they were just used.  Next, **25 (white tile area) = 25 (grey tile area).** 25 + 25 = 50, the new tile will be used for the **Oven** location. Grey and white tiles are removed.  Next, **3 (white tile area) = 3 (grey tile area).** 3 + 3 = 6, the new tile will be used for the **Floor** location. Grey and white tiles are removed.  Next, **30 (white tile area) = 30 (grey tile area).** 30 + 30 = 60, the new tile will be used for the **Countertop** location. Grey and white tiles are **removed**.  Next, **16 (white tile area) = 16 (grey tile area).** 16 + 16 = 32, the new tile will be used for the **Floor** location. Grey and white tiles are **removed**.  Next, **35 (white tile area) = 35 (grey tile area).** 35 + 35 = 70, the new tile will be used for the **Wall** location. Grey and white tiles are **removed**.  Finally, we have no white and grey tiles left and we've managed to use all of the tiles for the different locations. |
| **20 30 6 10 10**  **10 20 5 6 30** | **White tiles left: none**  **Grey tiles left: none**  **Floor: 3**  **Countertop: 1**  **Sink: 1** | **10 = 10, 10 + 10 = 20** → ****Floor****  10 ≠ 20, 10 / 2 = 5 goes back to the sequence, 20 goes **to the back of** the sequence 5 = 5, 5 + 5 = 10 → **Floor 6 = 6, 6 + 6 = 12** → **Floor 30 = 30, 30 + 30 = 60** → **Countertop** 20 = 20, 20 + 20 = 40→ **Sink** |
| **30 6 10 10**  **10 20 5 6 30 35** | **White tiles left: none**  **Grey tiles left: 35, 20**  **Floor: 3**  **Countertop: 1** | **10 = 10, 10 + 10 = 20** → ****Floor** (both removed)**  10 ≠ 20, 10 / 2 = 5 goes back to the sequence, 20 goes to the back of the sequence 5 = 5, 5 + 5 = 10 → ****Floor** (both removed) 6 = 6, 6 + 6 = 12** → ****Floor** (both removed) 30 = 30, 30 + 30 = 60**→ Countertop **(both removed)** **No white tiles left. 2 grey tiles left with areas of 35 and 20.** |