5. Flooded!

To enable homebuyers to estimate the cost of flood insurance, a real-estate firm provides clients with the elevation of each 10-meter by 10-meter square of land in regions where homes may be purchased. Water from rain, melting snow, and burst water mains will collect first in those squares with the lowest elevations, since water from squares of higher elevation will run downhill. For simplicity, we also assume that storm sewers enable water from high-elevation squares in valleys (completely enclosed by still higher elevation squares) to drain to lower elevation squares, and that water will not be absorbed by the land, including the regions at the bottom most elevations.

From weather data archives, we know the typical volume of water that collects in a region. As prospective homebuyers, we wish to know the elevation of the water after it has collected in low-lying squares, and also the percentage of the region's area that is completely submerged by water (Note that even with very little rainfall, the water accumulation floods the lowest region.). You are to write the program that provides these results.

Input

The input consists of region descriptions. Each begins with a pair of integers, *m* and *n*, each less than 30, giving the dimensions of the rectangular region in 10-meter units. Immediately following are *m* lines of *n* integers giving the elevations of the squares in row-major order. Elevations are given in meters, with positive and negative numbers representing elevations above and below sea level, respectively. The final value in each region description is an integer that indicates the number of cubic meters of water that will collect in the region.

Output

Display the water level (in meters accumulated on the ground starting from the lowest level) and the percentage of the region's area under water, each on a separate line.
The water level and percentage of the region's area under water are to be displayed accurate to two fractional digits. Follow the output for each region with a blank line.

Sample Input

```
3 3
25 37 45
51 12 34
94 83 27
10000
```

Sample Input

```
Water level is 34.67 meters.
66.67 percent of the region is under water.
```