

Round A APAC Test 2016

[A. Googol String](#)

**B. gCube**

[C. gCampus](#)

[D. gSnake](#)

[Questions asked](#)

#### Submissions

##### Googol String

7pt	Not attempted 2083/5209 users correct (40%)
12pt	Not attempted 957/1730 users correct (55%)

##### gCube

8pt	Not attempted 1557/2234 users correct (70%)
16pt	Not attempted 855/1488 users correct (57%)

##### gCampus

10pt	Not attempted 493/1232 users correct (40%)
15pt	Not attempted 227/482 users correct (47%)

##### gSnake

13pt	Not attempted 121/629 users correct (19%)
19pt	Not attempted 41/88 users correct (47%)

#### Top Scores

cebrusfs	100
sgtlaugh	100
usaxena95	100
akovski	100
NAFIS	100
liuyibo1994	100
dtyfc	100
Legendks	100
Shaon	100
jki14	100

## Problem B. gCube

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the [Quick-Start Guide](#) to get started.

Small input  
8 points

Solve B-small

Large input  
16 points

Solve B-large

### Problem

Googlers are very interested in cubes, but they are bored with normal three-dimensional cubes and also want to think about other kinds of cubes! A "D-dimensional cube" has D dimensions, all of equal length. (D may be any positive integer; for example, a 1-dimensional cube is a line segment, and a 2-dimensional cube is a square, and a 4-dimensional cube is a hypercube.) A "D-dimensional cuboid" has D dimensions, but they might not all have the same lengths.

Suppose we have an **N**-dimensional cuboid. The **N** dimensions are numbered in order (0, 1, 2, ..., N - 1), and each dimension has a certain length. We want to solve many subproblems of this type:

1. Take all consecutive dimensions between the **L<sub>i</sub>**-th dimension and **R<sub>i</sub>**-th dimension, inclusive.
2. Use those dimensions to form a D-dimensional cuboid, where  $D = R_i - L_i + 1$ . (For example, if **L<sub>i</sub>** = 3 and **R<sub>i</sub>** = 6, we would form a 4-dimensional cuboid using the 3rd, 4th, 5th, and 6th dimensions of our **N**-dimensional cuboid.)
3. Reshape it into a D-dimensional cube **that has exactly the same volume as that D-dimensional cuboid**, and find the edge length of that cube.

Each test case will have **M** subproblems like this, all of which use the same original **N**-dimensional cuboid.

### Input

The first line of the input gives the number of test cases, **T**. **T** test cases follow.

Each test case begins with two integers **N** and **M**; **N** is the number of dimensions and **M** is the number of queries. Then there is one line with **N** positive integers **a<sub>i</sub>**, which are the lengths of the dimensions, in order. Then, **M** lines follow. In the *i*th line, there are two integers **L<sub>i</sub>** and **R<sub>i</sub>**, which give the range of dimensions to use for the *i*th subproblem.

### Output

For each test case, output one line containing "Case #x:", where x is the test case number (starting from 1). After that, output **M** lines, where the *i*th line has the edge length for the *i*th subproblem. An edge length will be considered correct if it is within an absolute error of  $10^{-6}$  of the correct answer. See the [FAQ](#) for an explanation of what that means, and what formats of real numbers we accept.

### Limits

$1 \leq T \leq 100$ .  
 $1 \leq a_i \leq 10^9$ .  
 $0 \leq L_i \leq R_i < N$ .

### Small dataset

$1 \leq N \leq 10$ .  
 $1 \leq M \leq 10$ .

### Large dataset

$1 \leq N \leq 1000$ .  
 $1 \leq M \leq 100$ .

### Sample

Input	Output
2	Case #1:
2 2	1.000000000
1 4	2.000000000
0 0	Case #2:

```
0 1      1.414213562
3 2      2.449489743
1 2 3
0 1
1 2
```

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