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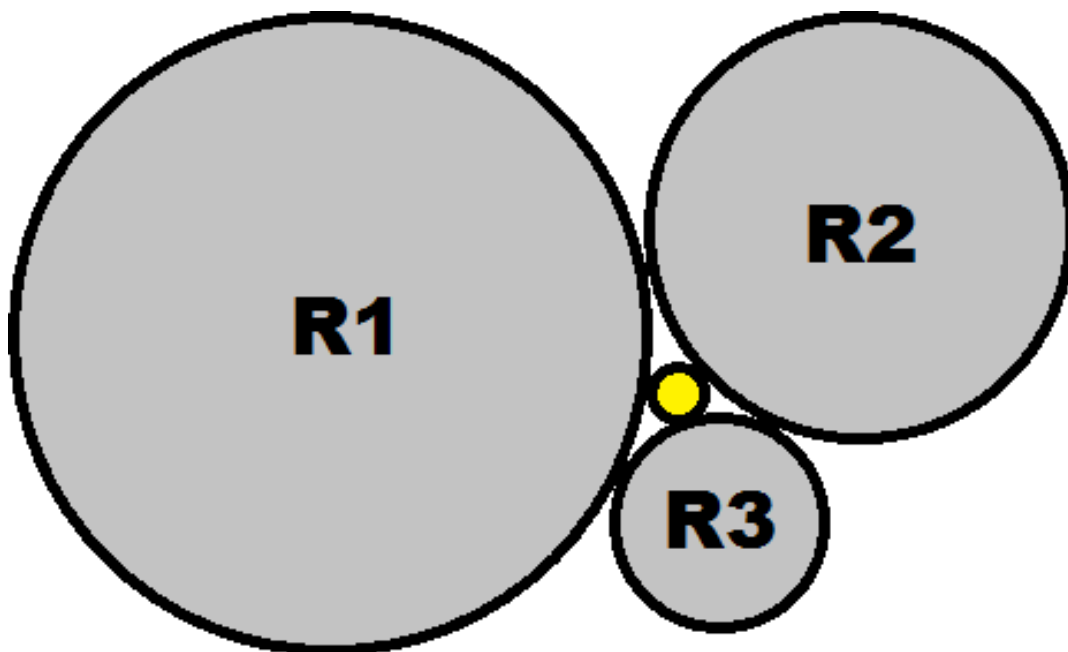
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## CIRCLE\_E - Three Circle Problem (EASY)

*no tags*

Given 3 distinct circles with positive integer radius **R1**, **R2**, and **R3**, and arranged like in the picture below:



Now, your task is to compute radius of small circle that can be created like yellow circle in the picture above. All circles in the picture above tangent each other.

### Input

The first line in the input data, there is an integer **T** ( $0 < T \leq 10^3$ ) denoting number of test cases, than **T** lines follow.

For each lines, there are three integer **R1**, **R2**, and **R3**, ( $0 < \{R1, R2, R3\} < 10^9$ ) denoting radius of each circle like in the picture above.

### Output

For each test case, output radius of small circle that can be made, like in the picture above. Any output with absolute error less than  $10^{-6}$  is accepted.

## Example

**Input:**


```
3
1 1 1
10 10 10
23 46 69
```

**Output:**

```
0.154701
1.547005
6.000000
```

You can see my submission history and time record for this problem: here  
(//4.bp.blogspot.com/-  
fHl2MMejYp0/UV9hytkr7EI/AAAAAAAAASK/i42G22Ndq5Q/s1600/TCP(easy).png)

**See also:** Another problem added by Tjandra Satria Gunawan (../TJANDRA/)

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mishra\_sharad (/users/mishra\_sharad): 2016-08-14 21:23:10

don't be confused by integer inputs mentioned in problem....use double otherwise WA is waiting for u...long long int costed me one WA...



ritik\_agr (/users/ritik\_agr): 2016-07-08 09:11:51

use of formula only



vineetpratik (/users/vineetpratik): 2016-07-06 11:43:38

the inner soddy circle



shubham9466 (/users/shubham9466): 2016-03-13 17:19:10

for c/c++: Use double for taking radius input  
costed me a wrong ans..



street\_funker (/users/street\_funker): 2016-02-23 18:52:50

use double



rishabh\_1997 (/users/rishabh\_1997): 2016-02-15 19:45:52

too easy if u know the formula...

For math geeks, i prefer you to find formula yourself...



ragwave (/users/ragwave): 2016-01-02 13:17:04

use setiosflags(ios::fixed) to avoid large answer in exponential form!!



hmp (/users/hmp\_ism): 2015-12-18 06:22:08

equate 3 smaller triangle's area to a larger triangle area and get required radius.



kiner\_shah (/users/kiner\_shah): 2015-11-05 10:03:23

Soddy circles! Got it! AC!



prakash\_reddy (/users/prakash\_reddy): 2015-08-21 19:59:37

Simply use the formula of soddy(inner) circle.... :)

**Last edit: 2015-08-21 19:59:57**

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2. Please be careful, leave short comments only. Don't spam here.
3. For more discussion (hints, ideas, solutions) please visit our forum (/forum).
4. Authors of the problems are allowed to delete the post and use html code here (e.g. to provide some useful links).

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Added by: Tjandra Satria Gunawan  
(/users/tjandra)  
Date: 2013-04-05  
Time limit: 1s  
Source limit: 10000B  
Memory limit: 1536MB  
Cluster: Cube (Intel G860) (/clusters/)  
Languages: All except: ASM64  
Resource: Own Problem

#### Vote requirements




- ✗ user for 1 from 5 needed days
- ✗ solved 0 from 15 needed problems
- ✓ solve this problem

#### Own tags

# # # # # # # # #

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