REC-CIS

GE23131-Programming Using C-2024

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Status	Finished
Started	Monday, 13 January 2025, 12:37 PM
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Question **1**

Correct

⚑ Flag question

You are transporting some boxes through a tunnel, where each box is a parallelepiped, and is

The height of the tunnel **41** feet and the width can be assumed to be infinite. A box can be ca strictly less than the tunnel's height. Find the volume of each box that can be successfully tran Boxes cannot be rotated.

Input Format

The first line contains a single integer **n**, denoting the number of boxes.
n lines follow with three integers on each separated by single spaces - **length$_i$**, **width$_i$** and **he** of the **i**-th box.

Constraints

$1 \leq n \leq 100$
$1 \leq length_i, width_i, height_i \leq 100$

Output Format

For every box from the input which has a height lesser than **41** feet, print its volume in a sepa

Sample Input 0

```
4
5 5 5
1 2 40
10 5 41
7 2 42
```

Sample Output 0

```
125
80
```

Explanation 0

The first box is really low, only **5** feet tall, so it can pass through the tunnel and its volume is !

The second box is sufficiently low, its volume is **1 x 2 x 4= = 80**.

The third box is exactly **41** feet tall, so it cannot pass. The same can be said about the fourth

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```
 2
 3  int main(){
 4      int n;
 5      scanf("%d", &n);
 6      for(int i=0; i<n; i++){
 7          int lenght,width,height;
 8          scanf("%d %d %d", &lenght, &width, &height);
 9          if(height < 41){
10              int volume = lenght*width*height;
11              printf("%d\n", volume);
12          }
13      }
14  }
15
```

	Input	Expected	Got	
	4 5 5 5 1 2 40 10 5 41 7 2 42	125 80	125 80	

Passed all tests!

Question **2**

Correct

⚑ Flag question

You are given n triangles, specifically, their sides a_i, b_i and c_i. Print them in the same style but
the largest one. It is guaranteed that all the areas are different.

The best way to calculate a volume of the triangle with sides a, b and c is Heron's formula:

$S = \ddot{O} p * (p - a) * (p - b) * (p - c)$ where $p = (a + b + c) / 2$.

Input Format

First line of each test file contains a single integer n. n lines follow with a_i, b_i and c_i on each s

Constraints

$1 \le n \le 100$
$1 \le a_i, b_i, c_i \le 70$
$a_i + b_i > c_i, a_i + c_i > b_i$ and $b_i + c_i > a_i$

Output Format

Print exactly n lines. On each line print 3 integers separated by single spaces, which are a_i, b_i

Sample Input 0

3

7 24 25

5 12 13

3 4 5

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3 4 5

5 12 13

7 24 25

Explanation 0

The square of the first triangle is **84**. The square of the second triangle is **30**. The square of th
reverse one.

Answer: (penalty regime: 0 %)

```c
#include<stdio.h>
#include<stdlib.h>
#include<math.h>

typedef struct{
    double area;
    int a,b,c;
}Triangle;

double calculate_area(int a, int b, int c){
    double p = (a+b+c)/2.0;
    return sqrt(p*(p-a)*(p-b)*(p-c));
}

int compare(const void* x, const void* y){
    Triangle *t1 = (Triangle*)x;
    Triangle *t2 = (Triangle*)y;
    if(t1->area < t2->area) return -1;
    if(t1->area > t2->area) return 1;
    return 0;
}

int main(){
    int n;
    scanf("%d", &n);
    Triangle triangles[n];
    for (int i=0; i<n; i++){
        int a,b,c;
        scanf("%d %d %d", &a, &b, &c);
        triangles[i].a = a;
        triangles[i].b = b;
        triangles[i].c = c;
        triangles[i].area = calculate_area(a,b,c);
    }

    qsort(triangles,n,sizeof(Triangle),compare);
    for(int i=0; i<n; i++){
        printf("%d %d %d\n", triangles[i].a, triangles[i].b, triangles[i]
    }
    return 0;
}
```

	Input	Expected	Got	
	3 7 24 25 5 12 13 3 4 5	3 4 5 5 12 13 7 24 25	3 4 5 5 12 13 7 24 25	

Passed all tests!