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ECE-D

Question1:

BoxesthroughaTunnel

ProblemStatement:

You are transporting someboxes through a tunnel, where each box is a parallelepiped, and is characterized by its length, width and height.

Theheightofthetunnelis41feetandthewidthcanbeassumedtobeinfinite. Aboxcan becarriedthroughthetunnelonlyifitsheightisstrictlylessthanthetunnel'sheight. Find the volume of each boxthat can be successfully transported to the other end of the tunnel.

Note: Boxes cannot be rotated.

Input Format

Thefirstlinecontains a single integern, denoting the number of boxes.

nlinesfollowwiththreeintegersoneachseparatedbysinglespaces-lengthi, widthiand heighti which are length, width and height in feet of the i-th box.

Constraints

1≤n≤100

1≤lengthi,widthi,heighti≤100

Output Format

For every box from the input which has a height lesser than 41 feet, print its volume in a separate line.

SampleInput

4

555

1 2 40

10541

7 2 42

SampleOutput

125

80

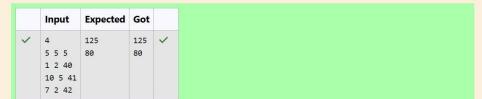
Explanation

The first box is really low, only 5 feet tall, so it can pass through the tunnel and its volume is $5 \times 5 \times 5 = 125$.

Thesecondboxissufficientlylow,itsvolumeis1x2x4==80.

Thethirdboxisexactly41feettall,soitcannotpass.Thesamecanbesaidaboutthe fourth box.

```
1 #include <stdio.h>
 2 v int main(){
       int n;
 3
        scanf("%d",&n);
 4
 5 1
        for (int i=0;i<n;i++){
           int length, width, height;
           scanf("%d %d %d",&length,&width,&height);
 8
9 v
           if(height < 41){
               int volume=length*width*height;
10
11
                printf("%d\n",volume);
12
13
        }
14 }
            Expected Got
    Input
```



Question2: SmallTriangles,LargeTriangles

You are given n triangles, specifically, their sidesai, bi and ci. Print them in the same stylebutsorted by their areas from the smallest one to 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, band cisHeron's formula: $S=p^*(p-a)^*(p-b)^*(p-c)$ where p=(a+b+c)/2.

InputFormat

Firstlineofeachtestfilecontainssingleintegern.nlinesfollowwithai,biandcioneach separated by single spaces.

Constraints

1<n<100

1≤ai,bi,ci≤70

ai+bi>ci,ai+ci>biandbi+ci>ai Output

Format

Printexactlynlines.Oneachlineprint3integersseparatedbysinglespaces,whichareai, bi and ci of the corresponding triangle.

SampleInput

3

Explanation

The square of the first triangle is 84. The square of the second triangle is 30. The square of the third triangle is 6. So, the sorted order is the reverse one.

```
Answer: (penalty regime: 0 %)
   1
      #include <stdio.h>
       #include <math.h>
   2
       #include <stdlib.h>
   4 v typedef struct {
   5
          double area;
          int a,b,c;
   6
   7
      }Triangle;
   8
   9 - double calculate_area(int a,int b,int c){
  10
         double p=(a+b+c)/2.0;
           return sqrt(p*(p-a)*(p-b)*(p-c));
  11
  12 }
  13 - int compare(const void*x,const void*y){
  14
           Triangle *t1=(Triangle *)x;
           Triangle *t2=(Triangle *)y;
  15
  16
          if (t1->area < t2->area) return -1;
          if (t1->area > t2->area) return 1;
  17
  18
          return 0;
  19 }
  20 v int main(){
  21
          int n;
  22
           scanf("%d",&n);
  23
          Triangle triangles[n];
  24
  25
           for (int i=0; i<n;i++){
  26
               int a,b,c;
               scanf("%d %d %d",&a,&b,&c);
  27
  28
  29
              triangles[i].a = a;
              triangles[i].b = b;
  30
              triangles[i].c = c;
  31
  32
              triangles[i].area = calculate_area(a,b,c);
  33
  34
  35
           qsort(triangles, n, sizeof(Triangle),compare);
  36
  37 ₩
          for(int i=0;i<n;i++){</pre>
  38
              printf("%d %d %d\n",triangles[i].a, triangles[i].b, triangles[i].c);
  39
  40
          return 0;
  41 }
              Expected Got
      Input
              3 4 5
                        3 4 5
                        5 12 13
      7 24 25 5 12 13
                       7 24 25
      5 12 13 7 24 25
      3 4 5
Passed all tests! <
```