CS110: Computer Programming Lab
Department of CSE
IIT, Guwahati

Module 02 Stage 03 Exercise 13

Problem description

We seek to print all sets of 4 integers <A, B, C, D> with the following properties. If there are more than 1000 such sets, we only want to print the first 1000 sets that we find. (Print each set of 4 integer in one separate line)

Properties that the integers in each printed set must satisfy:

```
1)    A < B < C < D
2)    A² + B² + C² = D²
3)    D < 30000
4)    D > 20000
```

To help the assessment, you will be asked to adjust your variable values to show that your program can generate some of these sets. Your program may need to run multiple times to cover a few cases -- we do not require all these sets to be printed in one single test run.

Some test cases:

```
<0, 2380, 20160, 20300>  Proof: 0+5664400+406425600 == 412090000
<0, 3360, 20020, 20300>  Proof: 0+11289600+400800400 == 412090000
<0, 5684, 19488, 20300>  Proof: 0+32307856+379782144 == 412090000
<0, 9324, 18032, 20300>  Proof: 0+86936976+325153024 == 412090000
<0, 10192, 17556, 20300>  Proof: 0+103876864+308213136 == 412090000
<0, 12180, 16240, 20300>  Proof: 0+148352400+263737600 == 412090000
<0, 14000, 14700, 20300>  Proof: 0+196000000+216090000 == 412090000
<24, 1660, 20232, 20300>  Proof: 576+2755600+409333824 == 412090000
<24, 8132, 18600, 20300>  Proof: 576+66129424+345960000 == 412090000
<0, 7084, 24288, 25300>  Proof: 0+50183056+589906944 == 640090000
<0, 15180, 20240, 25300>  Proof: 0+230432400+409657600 == 640090000
<64, 1620, 25248, 25300>  Proof: 4096+2624400+637461504 == 640090000
<64, 7860, 24048, 25300>  Proof: 4096+61779600+578306304 == 640090000
<64, 10452, 23040, 25300>  Proof: 4096+109244304+530841600 == 640090000
<64, 17520, 18252, 25300>  Proof: 4096+306950400+333135504 == 640090000
<24, 15936, 19658, 25306>  Proof: 576+253956096+386436964 == 640393636
<24, 16182, 19456, 25306>  Proof: 576+261857124+378535936 == 640393636
<56, 4170, 24960, 25306>  Proof: 3136+17388900+623001600 == 640393636
<56, 6960, 24330, 25306>  Proof: 3136+48441600+591948900 == 640393636
<56, 9030, 23640, 25306>  Proof: 3136+81540900+558849600 == 640393636
<56, 10992, 22794, 25306>  Proof: 3136+120824064+519566436 == 640393636
<56, 11640, 22470, 25306>  Proof: 3136+135489600+504900900 == 640393636
<56, 13494, 21408, 25306>  Proof: 3136+182088036+458302464 == 640393636
<56, 15288, 20166, 25306>  Proof: 3136+233722944+406667556 == 640393636
<56, 17466, 18312, 25306>  Proof: 3136+305061156+335329344 == 640393636
```