Problem A. Apocalyptic Alignment

Time limit: 15.0s
Memory limit: 128MB

Alan is an evil wizard who lives in the BambooFox Empire. Being the winner of the annual International Creeper Powering Contest (ICPC), he received a book of ancient spells as a reward. After some investigations, the book turned out to be some notes taken during Dark Lord Anodorf's lectures. As the lecturer is one of the most powerful wizards ever existed, the book contains the greatest magic spells, even ones with the power to destroy the entire observable universe, albeit at a colossal cost.

Unsurprisingly, Alan wants to obliterate the BambooFox Empire with the help of said book. The entire world is a square piece of land on the Cartesian coordinates, where each point (x, y) inside satisfies $0 \le x \le 10^9$ and $0 \le y \le 10^9$. Furthermore, the land of the BambooFox Empire is rectangular and has sides parallel to the world's borders; it contains the points (x, y) where $a \le x \le c$ and $b \le y \le d$, where a, b, c and d are constants. It is known that a, b, c and d are all integers within the range $[0, 10^9]$ and that the area of the BambooFox Empire is non-zero.

However, Alan does not know the exact location he should target. In addition, due to the galactic mana cost required to cast the spell, Alan can use it only once and cannot afford to destroy anything outside the boundaries of the BambooFox Empire. Fortunately, there is another spell he found in the book that may come into use, namely `long long area(int x1, int y1, int x2, int y2)`.

To cast the `area` spell, one has to provide a rectangle described by the 4 arguments `x1`, `y1`, `x2` and `y2`, i.e. the region bounded by the lines $x = x1$, $x = x2$, $y = y1$ and $y = y2$. The spell then (magically) tells you the area of the intersection of BambooFox Empire's land and the provided rectangle. Since magic spells are rigorous, the arguments you provide must satisfy $0 \le x1 < x2 \le 10^9$ and $0 \le y1 < y2 \le 10^9$, or you will receive the `Wrong Answer` rune and instantly die. The mana cost of this spell is also rather large, so if you use it for more than 128 times, the `Wrong Answer` rune will be given too.

Alan wants to know, given the constraints, can he find out the BambooFox Empire's exact location and dimensions so he could cast the final world-eradicating spell optimally?

Technical Details

This is an interactive problem. You should add `#include "Land.h"` to your source file. This header file provides the following:

- The `rectangle` type:

  ```
  typedef struct rectangle {
      int a, b, c, d;
  } rectangle;
  ```

  which defines the rectangle with coordinates $a \leq x \leq c$ and $b \leq y \leq d$.

- The `area` spell, as decribed above:

  ```
  long long area(int x1, int y1, int x2, int y2);
  ```

Your task is to implement the function

```
rectangle find_rectangle();
```

in C. The function will be called at most 1.5×10^5 times in a test case, and for each call you should utilize the `area` function to find out the location of the BambooFox Empire and return it. You may call `area` at most 128 times each time the judge calls `find_rectangle()`.

Sample Interaction

Function calls	Return values
`area(0, 0, 1000000000, 1000000000);`	`12`
`area(0, 0, 10, 10);`	`9`
`area(8, 0, 10, 10);`	`6`
`area(7, 0, 10, 10);`	`9`
`area(7, 0, 11, 10);`	`12`
`area(7, 7, 11, 10);`	`12`

After the last call it is certain that $a = 7$, $b = 7$, $c = 11$ and $d = 10$, therefore you should return the rectangle {`7, 7, 11, 10`}.