You are playing a *Real-time strategy* computer game in 2D space.

You have groups of soldiers, each characterized by a position and a number of soldiers .

The opponent has towers, each characterized by a position and a number of soldiers guarding it, .

One your command consists of 5 parameters , denoting that of your soldiers from position (there must be at least soldiers at the position at the start of the command) are teleported to position , using energy.

If at position there is a tower guarded by soldiers, then there is a battle between them and your soldiers, and if:

1. , the tower is destroyed, the soldiers defending it, as well as your soldiers, die.
2. , your soldiers die, and soldiers survive in the tower.
3. , the tower is destroyed, the soldiers defending it die, and of your soldiers survive.

By we denote the value of rounded up.

**If on the segment between the points and there is a tower that is not in position , then between this tower and your soldiers no battle takes place.**

You want to destroy all the enemy towers using the minimum amount of energy.

Your score will be . If you use more than energy you will receive 0 points.

**Input**

The first line of the **war.in** file contains the numbers and .

The next lines contain three natural numbers each - your soldiers.

The next lines contain three natural numbers each - the opponent's towers.

**Output**

On the first line of the file **war.out**, print the number - the number of commands.

On the next lines, print five numbers , denoting your commands.

They must satisfy the constraints and .

**Scoring**

For each test, let *minScore* be the smallest score among all participants' scores and *yourScore* be your score. You will be awarded multiplied by the amount of points for the test.

**Constraints**

**Time limit: 5 sec.**

**Memory limit: 256 MB.**

The tests are distributed as follows:

|  |  |
| --- | --- |
| **Percentage** |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**Sample test**

|  |  |
| --- | --- |
| **Input (war.in)** | **Output (war.out)** |
| 2 2  1 1 2  3 1 2  2 2 3  4 2 3 | 4  1 1 2 1 2  3 1 2 1 2  2 1 2 2 4  2 2 4 2 3 |

**Example explanation**

The sample test is only for an explanation, in all real tests .

The first command moves 2 soldiers from to for 2 energy.

The second command moves 2 soldiers from to for 2 energy, there are now 4 soldiers in .

The third command moves 4 soldiers from to for 4 energy, after the battle there are soldiers left, and the tower is destroyed.

The fourth command moves 3 soldiers from to for 6 energy, after the battle there are soldiers left, and the tower is destroyed.

The total energy used is .

The score is

**Tests generation**

The numbers are randomly generated in the respective intervals that bound them (each number in the interval has an equal probability). It is guaranteed that there are no groups of soldiers or towers at the same coordinates at the start.