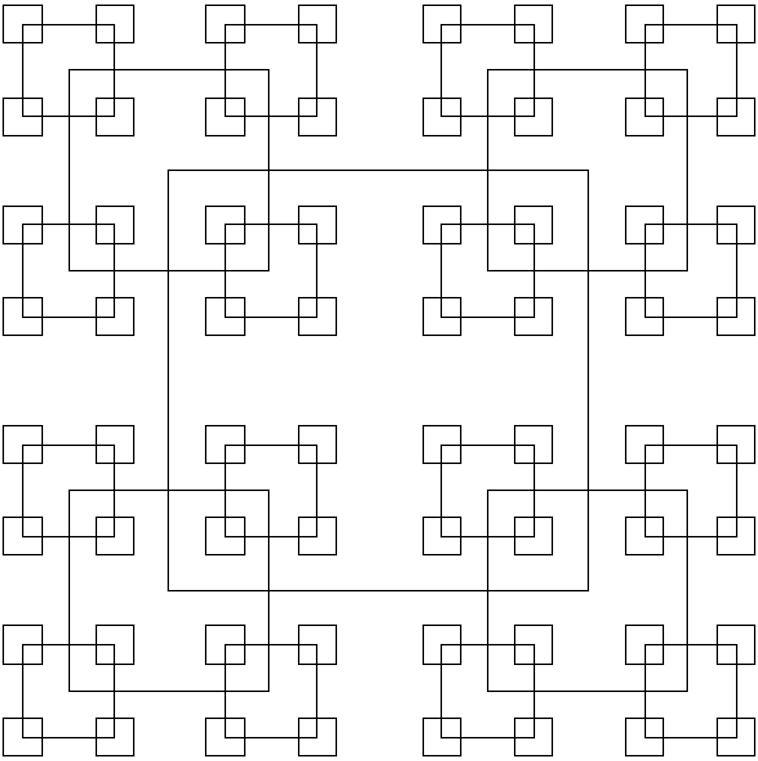
Geometrically, any square has a unique, well-defined centre point. On a grid this is only true if the sides of the square are an odd number of points long. Since any odd number can be written in the form $2k + 1$, we can characterise any such square by specifying k, that is we can say that a square whose sides are of length $2k + 1$ has size k. Now define a pattern of squares as follows.

1. The largest square is of size k (that is sides are of length $2k + 1$) and is centred in a grid of size 1024 (that is the grid sides are of length 2049).
2. The smallest permissible square is of size 1 and the largest is of size 512, thus $1 \leq k \leq 512$.
3. All squares of size $k > 1$ have a square of size 'k div 2' centred on each of their 4 corners. ('div' implies integer division, thus '9 div 2 = 4').
4. The top left corner of the screen has coordinates $(0, 0)$, the bottom right has coordinates $(2048, 2048)$.

Hence, given a value of k, we can draw a unique pattern of squares according to the above rules. Furthermore any point on the screen will be surrounded by zero or more squares. (If the point is on the border of a square, it is considered to be surrounded by that square). Thus if the size of the largest square is given as 15, then the following pattern would be produced.



Write a program that will read in a value of k and the coordinates of a point, and will determine how many squares surround the point.

Input

Input will consist of a series of lines. Each line will consist of a value of k and the coordinates of a point. The file will be terminated by a line consisting of three zeroes (`0 0 0`).

Output

Output will consist of a series of lines, one for each line of the input. Each line will consist of the number of squares containing the specified point, right justified in a field of width 3.

Sample Input

```
500 113 941
0 0 0
```

Sample Output

```
  5
```