Problem-1:

Input Format

The first line contains an integer, , denoting the number of test cases.

Each test case, , is comprised of a single line with an integer, , which can be arbitrarily large or small.

Output Format

For each input variable and appropriate primitive , you must determine if the given primitives are capable of storing it. If yes, then print:

n can be fitted in:

* dataType

If there is more than one appropriate data type, print each one on its own line and order them by size (i.e.:).

If the number cannot be stored in one of the four aforementioned primitives, print the line:

n can't be fitted anywhere.

Sample Input

5

-150

150000

1500000000

213333333333333333333333333333333333

-100000000000000

Sample Output

-150 can be fitted in:

* short

* int

* long

150000 can be fitted in:

* int

* long

1500000000 can be fitted in:

* int

* long

213333333333333333333333333333333333 can't be fitted anywhere.

-100000000000000 can be fitted in:

* long

Problem-2:

We use the integers a, b, and n to create the following series:

$$(a + 2^0 \cdot b), (a + 2^0 \cdot b + 2^1 \cdot b), \ldots, (a + 2^0 \cdot b + 2^1 \cdot b + \ldots + 2^{n-1} \cdot b)$$

Input:

2

0 2 10

5 3 5

Output:

2 6 14 30 62 126 254 510 1022 2046

8 14 26 50 98

1. We use $a = 0$, $b = 2$, and $n = 10$ to produce some series $s_0, s_1, \ldots, s_{n-1}$:

   - $s_0 = 0 + 1 \cdot 2 = 2$
   - $s_1 = 0 + 1 \cdot 2 + 2 \cdot 2 = 6$
   - $s_2 = 0 + 1 \cdot 2 + 2 \cdot 2 + 4 \cdot 2 = 14$

   ... and so on.

   Once we hit $n = 10$, we print the first ten terms as a single line of space-separated integers.

2. We use $a = 5$, $b = 3$, and $n = 5$ to produce some series $s_0, s_1, \ldots, s_{n-1}$:

   - $s_0 = 5 + 1 \cdot 3 = 8$
   - $s_1 = 5 + 1 \cdot 3 + 2 \cdot 3 = 14$
   - $s_2 = 5 + 1 \cdot 3 + 2 \cdot 3 + 4 \cdot 3 = 26$
   - $s_3 = 5 + 1 \cdot 3 + 2 \cdot 3 + 4 \cdot 3 + 8 \cdot 3 = 50$
   - $s_4 = 5 + 1 \cdot 3 + 2 \cdot 3 + 4 \cdot 3 + 8 \cdot 3 + 16 \cdot 3 = 98$

   We then print each element of our series as a single line of space-separated values.