

Min value of x

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Given 4 integers a, b, c and k . Find the min value of x such that $ax^2 + bx + c \geq k$.

INPUT:

The first line contains a single integer T i.e. the number of test cases. The first and the only line in each test case consists of four integers a, b, c and k .

OUTPUT:

Print the min value of the x so that the answer from the equation is atleast equal to k .

CONSTRAINTS:

$$1 \leq T \leq 100$$

$$1 \leq a, b, c \leq 10^5$$

$$1 \leq k \leq 10^9$$

EXAMPLES:

INPUT:

2

4 6 5 5

1 2 3 4

OUTPUT:

0

1