Quadratic primes

Euler published the remarkable quadratic formula:

$n^2 + n + 41$

It turns out that the formula will produce 40 primes for the consecutive values n = 0 to 39. However, when n = 40, $40^2 + 40 + 41 = 40(40 + 1) + 41$ is divisible by 41.

Using computers, the incredible formula $n^2 - 79n + 1601$ was discovered, which produces 80 primes for the consecutive values n = 0 to 79. The absolute product of the

coefficients, 79 and 1601, is 126479.

We are interested in producing better quadratic formulas.(which produces more prime numbers)

Considering quadratics of the form:

$n^2 + an + b$, where $|a| <= R$ and $|b| <= R$

(Your input will be the value of R)

where |n| is the modulus/absolute value of n

e.g. |11| = 11 and | - 4| = 4

Find a and b, for the quadratic expression that produces the maximum number of primes for consecutive values of n, starting with n = 0.

If two different values of n produces same prime, then we consider those primes as different (i.e. we count them twice) -- look at example.

Remember |a| <= R and |b| <= R

If you get multiple answers, choose the one having smallest value of a. Even then, if you get multiple answers, choose the equation having smallest value of b.

Input

First line of input contains an integer 't' representing the number of test cases. Then 't' lines follows.

Each line contains an integer R.

t<=8000

R<=10000

Output

Output should be of the format:

Integer 1<space>@<space>Integer2

Integer 1: Number of primes equation n^2+an+b produces for consecutive value of n, starting from n=0.

Integer 2: absolute product of the coefficients, a and b.

Output of each test case should be on separate line.

Scoring

Lesser your fingers work, better it is. :-)

(Minimize your source code length)

Example

Input:
2

41

5

Output:
41 @ 41

5 @ 5

Explanation:

case 1: a=-1 b=41

case 2: a=-1 b=5 (Here n=0 and n=1 produces same prime 5, but we will count it twice)