Easy Equation

There is an equation for you:

   A MOD B = C, where A > B

What is the maximum value of C when B is given?

Input

Input starts with an integer **T (≤ 100)** denoting the number of test cases.

Each test case contains a number **B (2 <= B <= 10^{100000}).**

Output

For each case, output the expected result.

Example

Input:
4
2
15
1005
365

Output:
1
14
1004
364

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