11476   Factorizing Large Integers

Given an integer N ($\leq 10^{16}$) find its prime factoring.

Input

The first line of the input contains T (≤ 800), the number of test cases. Then the next T lines contains an integer N ($1 < N \leq 10^{16}$).

Output

For every test case output its prime factoring representation. See the sample output for the output format.

Sample Input

```
3
60
36
10007
```

Sample Output

```
60 = 2^2 * 3 * 5
36 = 2^2 * 3^2
10007 = 10007
```