

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

## Input

The first line of the input contains  $T$  ( $\leq 800$ ), 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
```