Multiplying Two Positive Integers

Time Limit: 2 seconds

Problem Description

Given four positive integers x, y, i, and j. Print the i-th, $(i+1)$-th, ..., j-th digits of xy.

Technical Specifications

1. The number of test cases would be less than or equal to 20.
2. $0 < x < 10^{100000}$ and $0 < y < 10^{100000}$.
3. $0 < i \leq j \leq \lceil \log(xy+1) \rceil$.

Input Format

The first line of the input file contains an integer indicating the number of test cases. Each test case contains four integers x, y, i, and j, separated by spaces.

Output Format

For each test case, print the i-th, $(i+1)$-th, ..., j-th digits of xy in a line.

Sample Input

```
4
10 73 1 1
10 72 1 2
10 81 2 3
100000123456789 654321098765 17 22
```

Sample Output

```
7
72
10
847876
```