Powers of square matrices   X39269_en

Write a program that, given a square matrix M and a natural number n, computes M^n.

Input

The input consists of several cases. Each case consists of a natural number $n \geq 0$ followed by a natural number $m > 0$ and by $m \times m$ integer numbers.

Output

For each case, print the elements of M^n in m lines following the format of the example. Print a line with 10 dashes after every matrix.

Sample input

```
2 4
1 -2 3 4
2 3 4 -5
-3 4 5 6
4 5 -6 7
3 4
1 -2 3 4
2 3 4 -5
-3 4 5 6
4 5 -6 7
```

Sample output

```
4 24 -14 60
-24 -4 68 -18
14 68 -4 40
60 18 -40 4
----------
334 308 -322 232
-308 218 360 206
322 360 54 -28
232 -206 28 -62
----------
```

Problem information

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