Worst path P10051_en

Given a directed and complete graph with n vertices, and an initial vertex x, compute the maximum cost of all the paths without repeated vertices that begin at x. The given graph is represented by an $n \times n$ matrix M, where for every pair (i, j) with $i \neq j$, m_{ij} is the (perhaps negative) cost of the arc from i to j.

For instance, the maximum cost of the first test is 80, corresponding to the path $1 \to 0 \to 3$, with cost $-10 + 90 = 80$.

Input

Input consists of several cases, each one with the number of vertices n, followed by the matrix M (n lines, each one with n integer numbers), followed by the initial vertex x. Vertices are numbered from 0 to $n - 1$. You can assume $1 \leq n \leq 18$, $0 \leq x < n$, that the diagonal has only zeros, and that the rest of numbers are between -10^6 and 10^6.

Output

For every case, print the cost of the worst path without repeated vertices that begins at x.

Sample input 1

```
4
  0 -10  30  90
-10   0  50 -12
-60  35   0  15
 14 -70 -11   0
1

1
0
0

3
 0  6  8
-4  0  3
-7 -2  0
2
```

Sample output 1

```
80
0
0
```

Problem information

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