

p5q1
p12q1
MR

Data Structures and Algorithms 2001

```
(a) Init Mij to length of edge ij or 1/2 maxint if no edge
    for k = 1 to n do
    { // point (1)
      for i = 1 to n do
        for j = 1 to n do
          Mij := min(Mij, Mik+Mkj)
        // point (2)
      }
    // Mij is now min cost of any path i->j
```

At (1), Mij is min cost of any path i->j passing only through vertices 1..(k-1)

At (2), Mij is min cost of any path i->j passing only through vertices 1..k

Proof easy.

```
(b) Not really -- use Warshall's algorithm
Same as Floyd but replace the inner for loop with
    ROWi := ROWj or ROWk
```