## 2. Floyd-Warshall

Recall that in the Floyd-Warshall algorithm, $dist(u, v, r)$ is defined to be the shortest pa
from u to v where all *intermediate* vertices (if any) are numbered r or less. The follow
recurrence is used to eventually compute $dist(u, v, |V|)$ for all vertices u and v:

$$dist(u, v, r) = \begin{cases} w(u \to v) & \text{if } r = 0 \\ \min\{dist(u, v, r-1), \\ \qquad dist(u, r, r-1) + dist(r, v, r-1)\} & \text{otherwise} \end{cases}$$

For the following graph, please fill in the distance arrays computed by Floyd-Warshall for
values of r. *In the distance arrays, let the row be the vertex the path starts at and the colu
be the vertex the path ends at.*
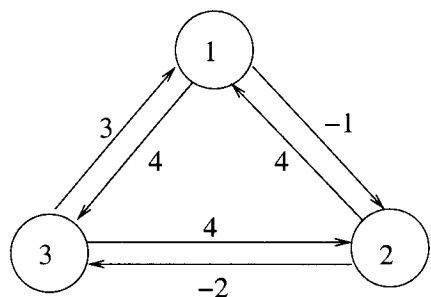
$r = 0$:

	1	2	3
1			
2			
3			

$r = 1$:

	1	2	3
1			
2			
3			

$r = 2$:

	1	2	3
1			
2			
3			

$r = 3$:

	1	2	3
1			
2			
3			