1. Using Bellman-Ford, find the shortest path tree from the node 3

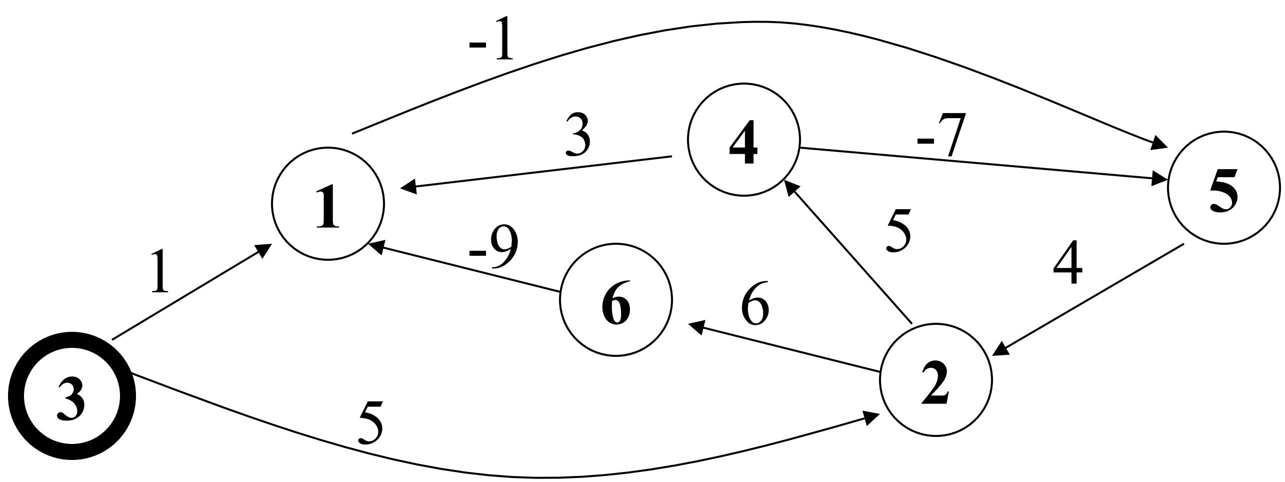
- the shortest-path tree consists of edges ___________________________

- the number of iterations of BF is ____________

- renumber the nodes such that after renumbering BF needs only 2 iterations to find shortest path tree

old number	1	2	3	4	5	6
new number	__	__	__	__	__	__

- the maximum number of iterations over all possible renumberings is _____?



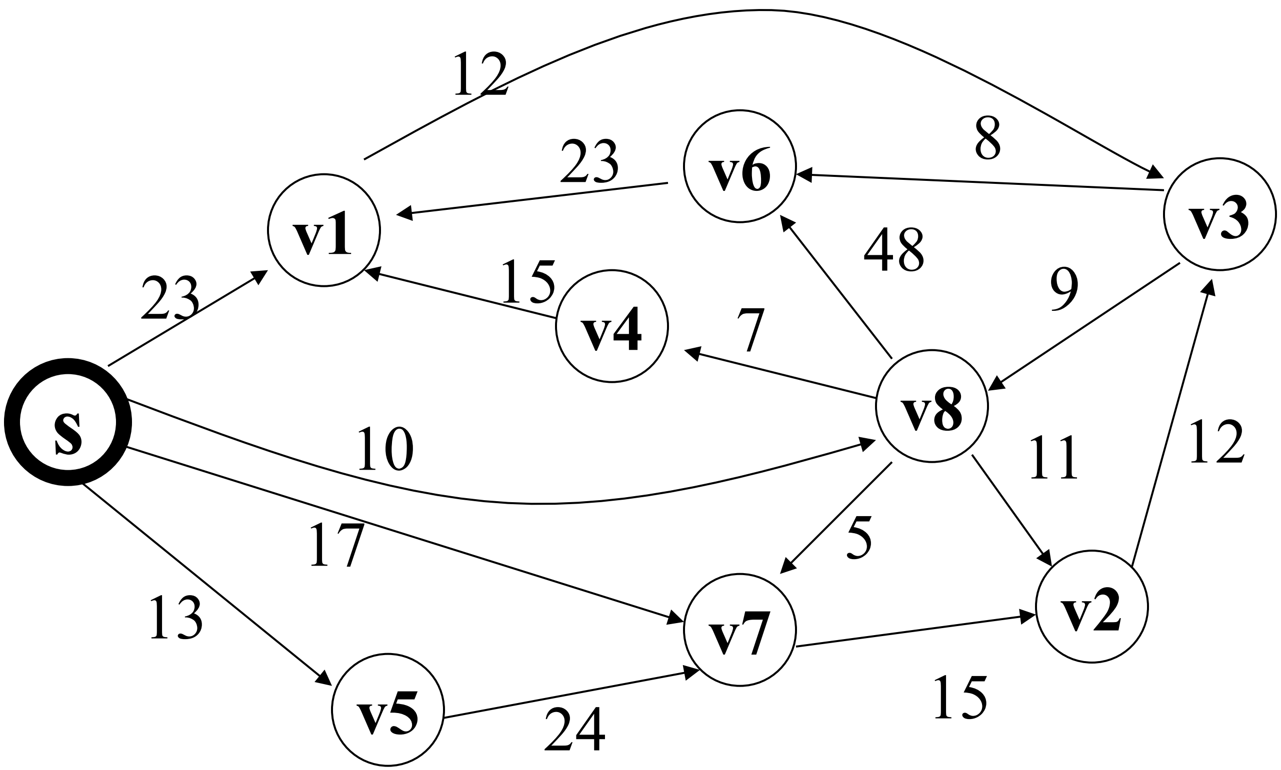
Quiz 3 CS4520 NAME:____

2 Write the content of the queue Q/ the set S/ keys d(v) after 5 iterations of the Dijkstra algorithm for the graph G below and source s (weights are on edges):

Q = ____________ S = __________________

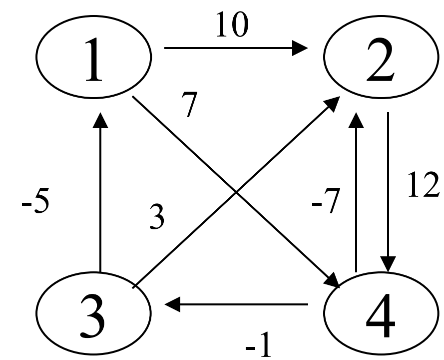
d(s) = ______ d(v1)=_____ d(v2)= _____ d(v3)= _____

d(v4)= _____ d(v5)= _____ d(v6)= ___ d(v7)= ___ d(v8)= ___.



3. Find all shortest path weights with the matrix multiplication method for the graph on the right side.

- give all matrices that are obtained on the way,
- are there any negative cycles in the graph?



$M=$

$M^2=$

$M^4=$

$M^8=$

$M^{16}=$

$M^{32}=$

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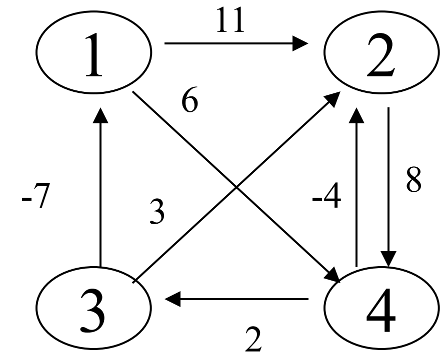
4. Find all shortest path weights with the Floyd-Warshall method for the graph on the right side.

- give all matrices that are obtained on the way



$D^0 =$

$D^1 =$

$D^2 =$

$D^3 =$

$D^4 =$

NAME:____