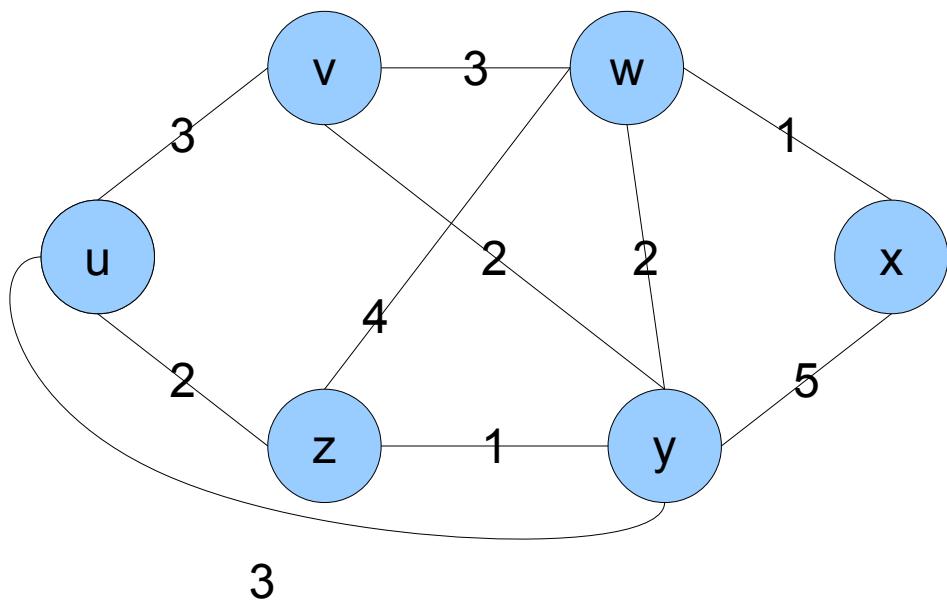


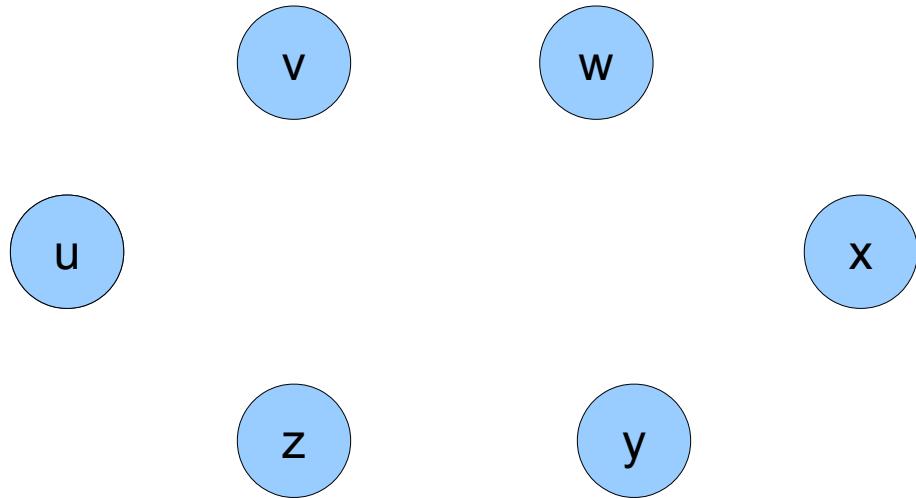
# **Homework #5**

(Due on December 1<sup>st</sup> 2011)

**Given the following network, use Dijkstra's algorithm to find the least cost paths from node u. Please provide a table showing the steps of the algorithm, a graph showing the resulting shortest-path tree from u and the final forwarding table of u.**



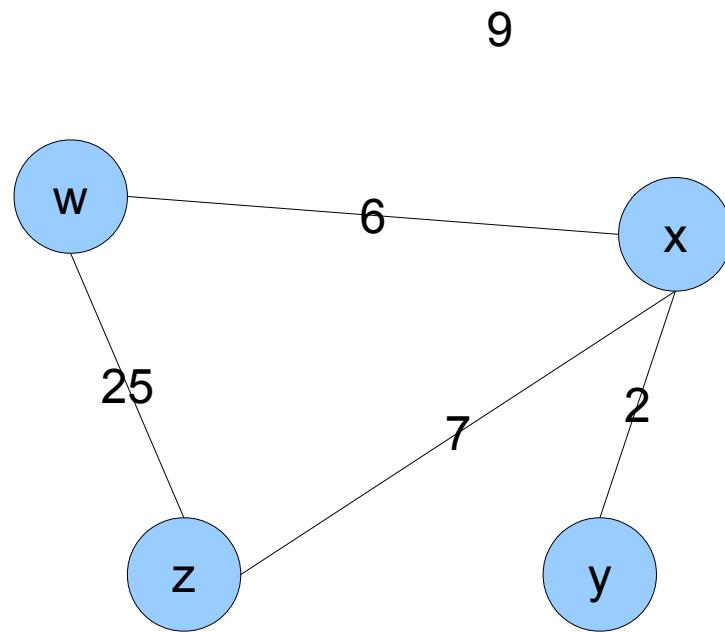
### Resulting shortest-path tree



### Resulting forwarding table in u

Destination	Link

**Given the following network, use the Distance Vector algorithm to find the least cost paths for all nodes. Fill the provided tables and indicate with arrows between the tables when a node sends a distance vector to another node.**



Node		cost to			
w		w	x	y	z
from	w				
	x				
	y				
	z				

Node		cost to			
w		w	x	y	z
from	w				
	x				
	y				
	z				

Node		cost to			
w		w	x	y	z
from	w				
	x				
	y				
	z				

Node		cost to			
w		w	x	y	z
from	w				
	x				
	y				
	z				

Node		cost to			
x		w	x	y	z
from	w				
	x				
	y				
	z				

Node		cost to			
x		w	x	y	z
from	w				
	x				
	y				
	z				

Node		cost to			
x		w	x	y	z
from	w				
	x				
	y				
	z				

Node		cost to			
x		w	x	y	z
from	w				
	x				
	y				
	z				

Node		cost to			
y		w	x	y	z
from	w				
	x				
	y				
	z				

Node		cost to			
y		w	x	y	z
from	w				
	x				
	y				
	z				

Node		cost to			
y		w	x	y	z
from	w				
	x				
	y				
	z				

Node		cost to			
y		w	x	y	z
from	w				
	x				
	y				
	z				

Node		cost to			
z		w	x	y	z
from	w				
	x				
	y				
	z				

Node		cost to			
z		w	x	y	z
from	w				
	x				
	y				
	z				

Node		cost to			
z		w	x	y	z
from	w				
	x				
	y				
	z				

Node		cost to			
z		w	x	y	z
from	w				
	x				
	y				
	z				

**Compare Link State routing algorithms to Distance Vector algorithms in terms of scalability and robustness.**

**Explain the count-to-infinity problem using a simple example. How can this problem be avoided?**

**How are routing policies used in BGP. Give one example.**

**What is the difference between Intra-AS and Inter-AS routing? Why are different routing protocols needed for each? Name one example for each category.**