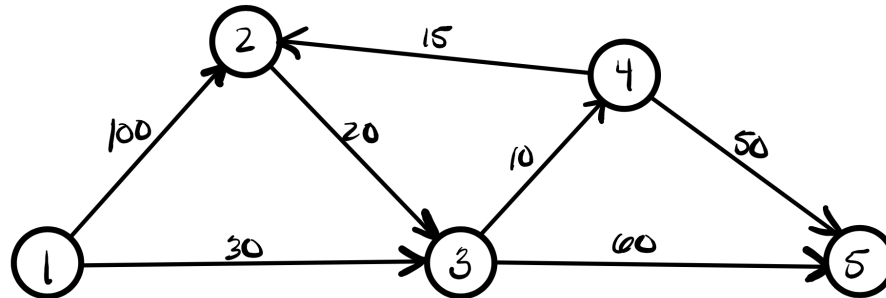


§8.2 (PART 3): TRANSPORTATION FORMULATION OF SHORTEST PATH

- 1.] Consider the network given below. The graph shows the permissible routes and their lengths in miles between city 1 (node 1) and four other cities (nodes 2 to 5).



Use the grids below to formulate the shortest path problem (a) from node 1 to node 5, and (b) from node 1 to node 2.

		Transshipment Points			Demand Point:	
		2	3	4	5	
Source Point:	1	100	30	M	M	Supply 1
Transshipment Points	2	0	20	M	M	1
	3	M	0	10	60	1
	4	15	M	0	50	1
	Demand	1	1	1	1	

		Transshipment Points			Demand Point:	
		3	4	5	2	
(SP)	1	30	M	M	100	Supply 1
(TP)	3	0	10	60	M	1
	4	M	0	50	15	1
	5	M	M	0	M	1
	Demand	1	1	1	1	

From Excel:

Shortest Path: 1-3-5

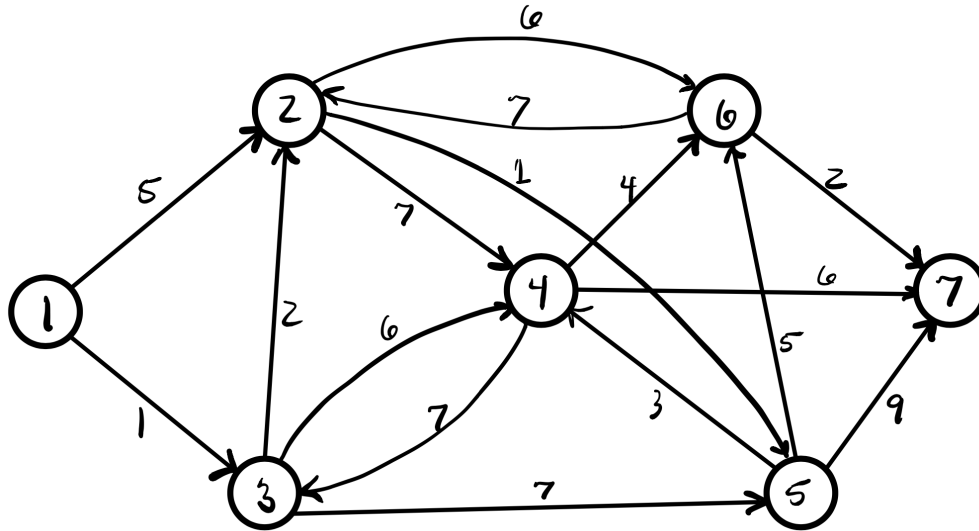
Min Distance = 90

From Excel:

Shortest Path: 1-3-4-2

Min Distance = 55

2.] Consider the network given below. The graph shows the permissible routes and their lengths in miles between city 1 (node 1) and seven other cities (nodes 2 to 8).



Use the grids below to formulate the shortest path problem (a) from node 1 to node ~~7~~⁶, and (b) from node ~~1~~² to node ~~6~~⁷.

	Transshipment Points					Demand Point:	Supply
	2	3	4	5	6	7	
Source Point: 1	5	1	M	M	M	M	1
Transshipment Points	2	0	M	7	1	6	M
	3	1	2	0	6	7	M
	4	M	M	7	0	M	4
	5	M	M	3	0	5	9
	6	7	M	M	M	0	2
Demand:	1	1	1	1	1	1	

	Transshipment Points					Demand Point:	Supply
	1	3	4	5	7	6	
(SP) 2	M	M	7	1	M	6	1
(TP)	1	0	1	M	M	M	M
	3	M	1	0	6	7	M
	4	M	M	7	0	M	6
	5	M	M	3	0	9	5
	7	M	M	M	M	0	M
Demand:	1	1	1	1	1	1	

From Excel:

Shortest Path: 1-3-2-5-6-7
 Min Distance = 11

From Excel:

Shortest Path: 2-5-6
 Min Distance = 6