Problem 1: Starting with vertex v1, trace through Prim's algorithm to find a minimum spanning tree for the following graph:

	1	2	3	4	5	6
1	0	10	15	∞	∞	12
2	10	0	20	∞	13	9
3	15	20	0	18	8	∞
4	∞	∞	18	0	∞	10
5	∞	13	8	∞	0	8
6	12	9	∞	10	8	0

Start with vertex v1 in the set, so initially we have:

	1	2	3	4	5	6
nearest						
distance						

Iteration #1: vnear = _____

	1	2	3	4	5	6
nearest						
distance						

Iteration #2: vnear = _____

	1	2	3	4	5	6
nearest						
distance						

Iteration #3: vnear = _____

	1	2	3	4	5	6
nearest						
distance						

Iteration #4: vnear = _____

	1	2	3	4	5	6
nearest						
distance						

Iteration #5: vnear = _____

	1	2	3	4	5	6
nearest						
distance						

b) Give the set of edges that comprise the minimum spanning tree you found:

_____

c) What is the cost of the minimum spanning tree? _____

Problem 2: Starting with vertex v1, trace through Prim's algorithm to find a minimum spanning tree for the following graph:

	1	2	3	4	5	6
1	**0**	**20**	**40**	**15**	∞	**70**
2	**20**	**0**	**30**	**60**	∞	∞
3	**40**	**30**	**0**	**90**	**20**	∞
4	**15**	**60**	**90**	**0**	**40**	**60**
5	∞	∞	**20**	**40**	**0**	**50**
6	**70**	∞	∞	**60**	**50**	**0**

Start with vertex v1 in the set, so initially we have:

	1	2	3	4	5	6
nearest						
distance						

Iteration #1: vnear = _____

	1	2	3	4	5	6
nearest						
distance						

Iteration #2: vnear = _____

	1	2	3	4	5	6
nearest						
distance						

Iteration #3: vnear = _____

	1	2	3	4	5	6
nearest						
distance						

Iteration #4: vnear = _____

	1	2	3	4	5	6
nearest						
distance						

Iteration #5: vnear = _____

	1	2	3	4	5	6
nearest						
distance						

b) Give the set of edges that comprise the minimum spanning tree you found:

_____

c) What is the cost of the minimum spanning tree? _____

Problem 3: Starting with vertex v4, trace through Prim's algorithm to find a minimum spanning tree for the following graph:

	1	2	3	4	5	6
1	0	∞	72	50	90	35
2	∞	0	71	70	73	75
3	72	71	0	∞	77	90
4	50	70	∞	0	60	40
5	90	73	77	60	0	80
6	35	75	90	40	80	0

Start with vertex v4 in the set, so initially we have:

	1	2	3	4	5	6
nearest	4	4	4	4	4	4
distance						

Iteration #1: vnear = _____

	1	2	3	4	5	6
nearest						
distance						

Iteration #2: vnear = _____

	1	2	3	4	5	6
nearest						
distance						

Iteration #3: vnear = _____

	1	2	3	4	5	6
nearest						
distance						

Iteration #4: vnear = _____

	1	2	3	4	5	6
nearest						
distance						

Iteration #5: vnear = _____

	1	2	3	4	5	6
nearest						
distance						

b) Give the set of edges that comprise the minimum spanning tree you found:

_____

c) What is the cost of the minimum spanning tree? _____