More Prim Tracing Page 1 of 3

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

h)	Give the set	t of edges that	comprise the 1	minimum s	manning tree	vou found
v)	Olve the set	i of cuges mai	comprise me i	iiiiiiiiiiiiiiiii S	spanning nec	you fouliu.

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

More Prim Tracing Page 2 of 3

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	oc .	∞
3	40	30	0	90	20	∞
4	15	60	90	0	40	60
5	8	8	20	40	0	50
6	70	8	∞	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	r =				
_	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 for
--

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

More Prim Tracing Page 3 of 3

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	8	0	71	70	73	75
3	72	71	0	8	77	90
4	50	70	8	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	: vneai					
	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?	
---	--