Homework #10 Key

5.2 (a) Prims ordering and partial MST sums

0.1 (1.)		
	Edge	Current MST Sum
1	AB	1
2	BC	3
3	CG	5
4	GD	6
5	GF	7
6	GH	8
7	AE	12

5.2 (b) A Kruskal ordering:

AB

DG

FG

GH

BC

CG

ΑE

Set Data Structure: You could show this as a picture of the tree. We show the array after legally added edge as shown above.

Initial Array:

Node	$\pi(x)$	Rank(x)
Α	Α	0
В	В	0
С	С	0
D	D	0
Е	E	0
F	F	0
G	G	0
Н	Н	0

After adding edge AB:

111001 0101011111 0 010 1121		
Node	$\pi(x)$	Rank(x)
Α	Α	1
В	Α	0
С	С	0
D	D	0
Е	E	0
F	F	0
G	G	0

T T	TT	^
H	H	U

After adding edge DG:

	0 0		
Node	$\pi(x)$	Rank(x)	
Α	Α	1	
В	Α	0	
С	С	0	
D	D	1	
E	E	0	
F	F	0	
G	D	0	
Н	Н	0	

After adding edge FG:

Node	$\pi(x)$	Rank(x)
Α	Α	1
В	Α	0
С	С	0
D	D	1
Е	E	0
F	D	0
G	D	0
Н	Н	0

After adding edge GH:

Node	$\pi(x)$	Rank(x)
Α	A	1
В	Α	0
С	С	0
D	D	1
Е	E	0
F	D	0
G	D	0
Н	D	0

After adding edge BC:

Node	$\pi(x)$	Rank(x)
Α	Α	1
В	Α	0
С	Α	0
D	D	1
Е	E	0
F	D	0
G	D	0

Н	D	0
After adding adge CC.		

After adding edge CG:		
$\pi(x)$	Rank(x)	
Α	2	
Α	0	
A	0	
Α	1	
E	0	
D	0	
D	0	
D	0	
	π(x) A A A A D D	

After adding edge AE:

Three dading eage Tib.		
Node	$\pi(x)$	Rank(x)
Α	Α	2
В	Α	0
С	Α	0
D	A	1
Е	Α	0
F	D	0
G	D	0
Н	D	0