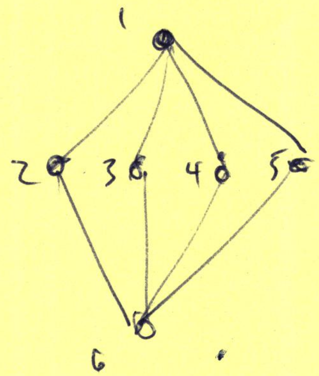
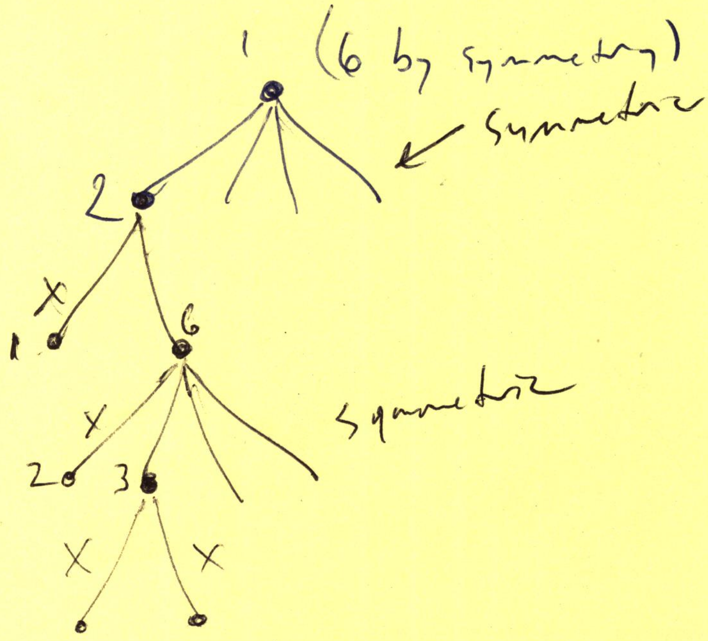
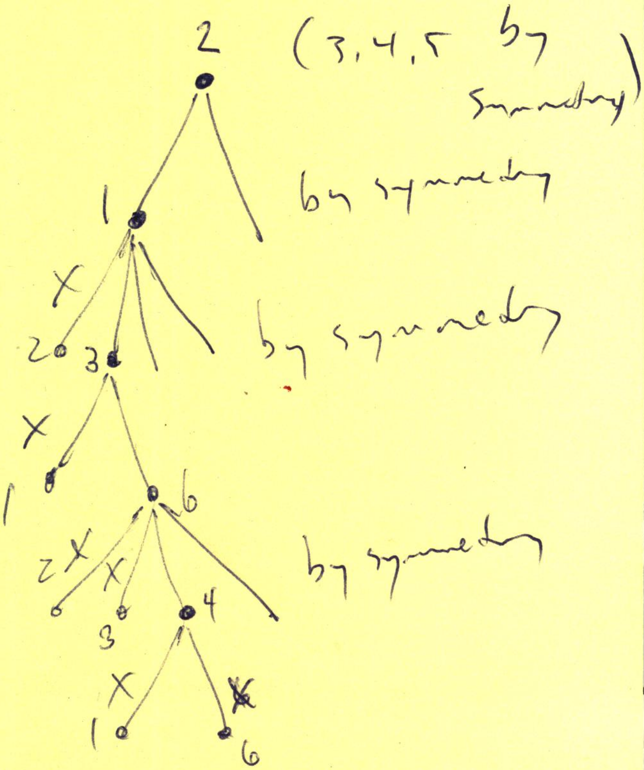
Prove that there are no Hamiltonian circuits for the graph of Ex. 2, p496.

Use symmetry: There are two kinds of points: $\{1,6\}$ & $\{2,3,4,5\}$.



Two trees will suffice:





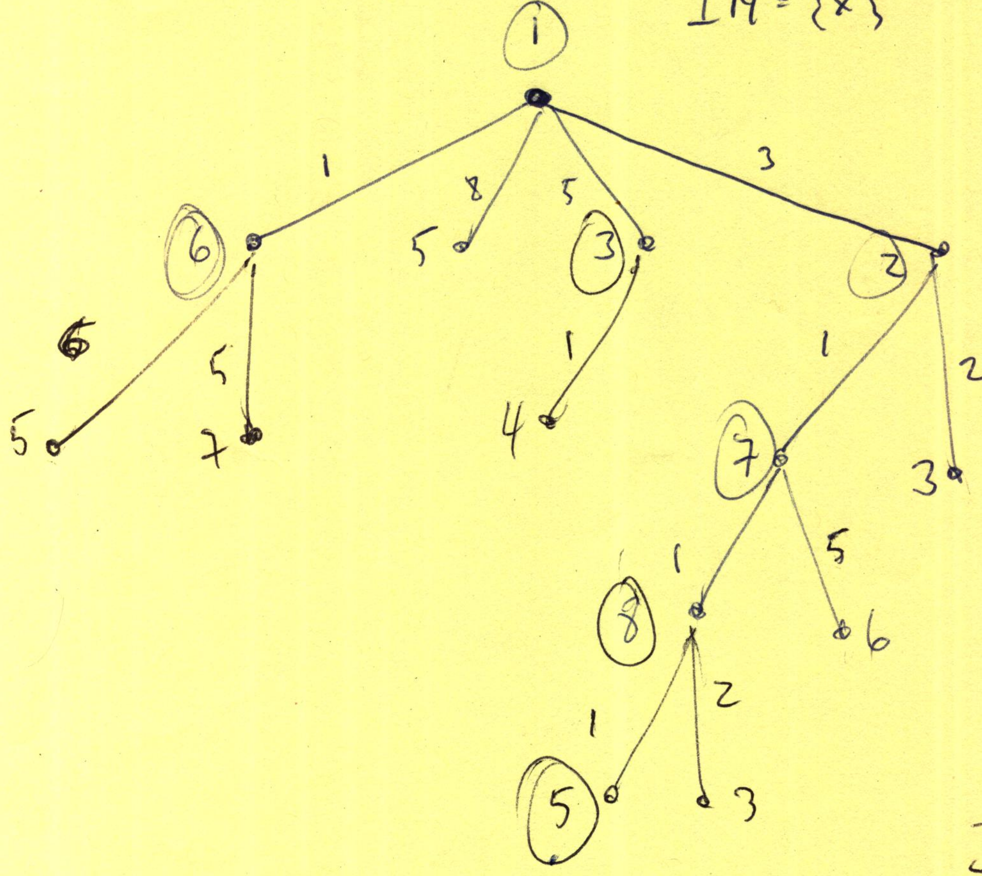
can't achieve depth 6 starting from 1, or 6

or from 2(3,4,5)

∴ ∄ a Hamiltonian Circuit.

#3 p507

IN = {x}



IN = {x, 6}

IN = {x, 6, 2}

IN = {x, 6, 2, 7}

IN = {x, 6, 2, 7, 8}

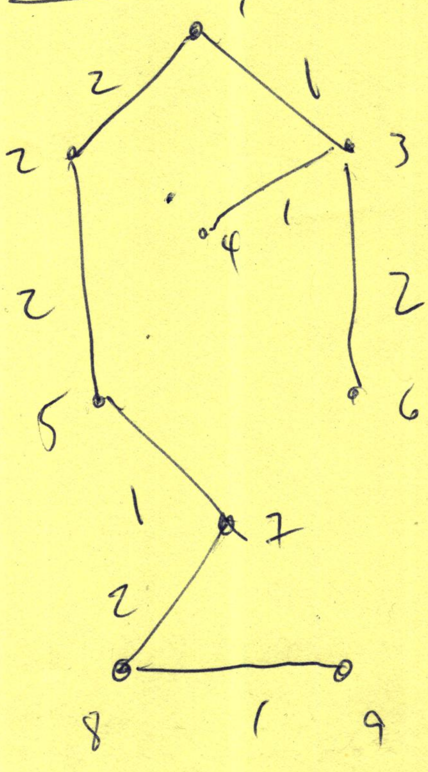
IN = {x, 6, 2, 7, 8, 3}

IN = {x, 6, 2, 7, 8, 3, 5}

Kruskal's algorithm:
Sort the weights,
& throw in the smallest
unless it creates a cycle.

<u>Ones:</u> <u>Twos:</u> Threes

8-9
5-7
4-3
1-3

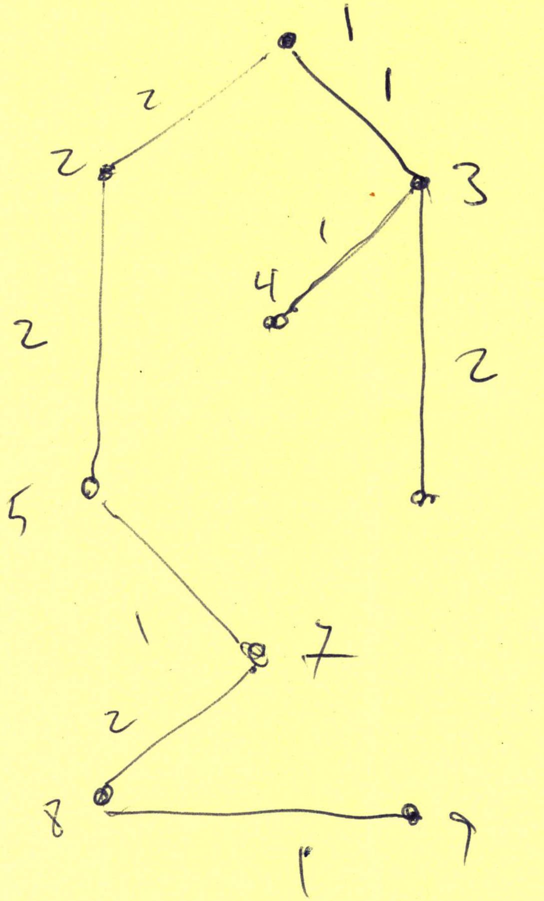


<u>Twos:</u>

1-2
2-5
3-6
7-8
~~7-9~~

<u>Connected!</u>

#20 p511 Prim's Algorithm



Start Anywhere.

That's the beginning of the tree. Now add the next closest node to the tree constructed so far.

Continue until all vertices are connected.

Total Cost : 12

The minimal spanning tree is not necessarily unique, but the total cost is unique.