

ⓐ
A Which graphs have a Hamilton circuit, or if not, a Hamilton path?



B What can you say about the # of edges in a ~~graph~~ tree with n vertices?

C How many non isomorphic trees are there with three vertices?

D Find a spanning tree for each of these graphs:

a. K_5

b. $K_{4,4}$

c. $K_{1,6}$

d. C_5

e. Q_3

Solutions.

A

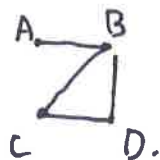
The first one has a hamilton cycle.



(The cycle is in solid lines, but the rest of the edges are dotted.)

~~The second one has neither (since the vertex of degree one is not a cycle).~~
~~The third one has~~

The second one has a hamilton path but not a hamilton cycle.



~~The path is~~ One such path is ABCD.

The third one has neither (the multiple vertices of degree one causes problems)

~~A~~

There is

B

It turns out a tree with n vertices has $n-1$ edges. We proved this in class.

C

~~How many non-isomorphic trees are there with~~

It turns out that there is just one.



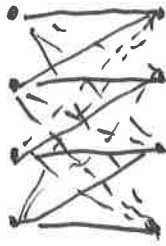
D

Note: There are many ways of doing this.

a.



b.

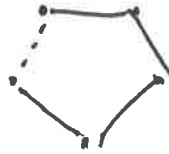


c.



(here, the ~~bipartite~~ graph is already a tree)

d.



e.

