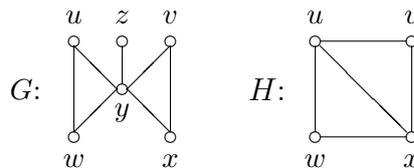


Math 483 - Spring 26

HOMEWORK 5

Due Thursday March 5.

1. (a) Draw all trees of order 5.
 (b) Draw all forests of order 5 that are not trees.
2. Give an example of a graph of order n and size $n - 1$ that is not a tree.
3. Show that G is a graph and $\delta(G) \geq 2$, then G contains a cycle.
4. A tree T has 50 end-vertices, an equal number of vertices of degree 2, degree 3, degree 4, and degree 5, and no vertex of degree greater than 5. What is the order of T ?
5. Determine all regular trees (that is, all graphs that are both regular and trees).
6. Let G and H be the following graphs:



- (a) Determine all spanning trees for G and all spanning trees for H .
 - (b) For each, determine which spanning trees are isomorphic to each other.
7. Show that an edge e of a connected graph G is a bridge if and only if e belongs to every spanning tree of G .
 8. Apply both Kruskal's and Prim's Algorithms to find a minimum spanning tree in the weighted graph pictured below. In each case, show the steps you are following to arrive at the minimum spanning tree.

