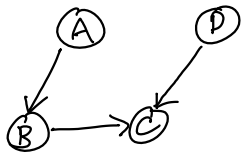
Is a tree a graph? Yes.

But what kind?

- ★ labeled? no (except binary trees?)
- ★ weighted? no
- ★ directed? yes
- ★ connected? weakly
- ★ cyclic? no
- ★ all vertices have indegree at most 1



A cycle is a path in a graph (of length >1) which starts and ends at the same vertex.

The in-degree of a vertex is the number of edges with that vertex as a destination.

The out-degree of a vertex is the number of edges with that vertex as a source.

(?) For any (simple) graph, what is the maximum number of edges? $|V| \cdot (|V| - 1) = |V|^2 - |V|$

(?) For any (simple) graph, what is the maximum sum of all out-degrees?

$|E|$