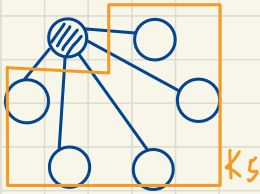


- 8) Show that the number of spanning trees in a complete graph with n vertices is at least $2^{n-1} - 1$.

complete graph K_n .

K_6

$(6-1)$ edges



$2^{(6-1)}$ set of edge union. and each set can find at least one way to form the graph as a Tree

However. one of the set that would not choose any edge should be deducted. because in this case the choosing root would not be connect with other. this violate the definition of a tree

$$\therefore K_6 \# \text{ spanning tree} = 2^6 - 1$$

Similarly.

$$K_n \# \text{ spanning tree} = 2^n - 1.$$