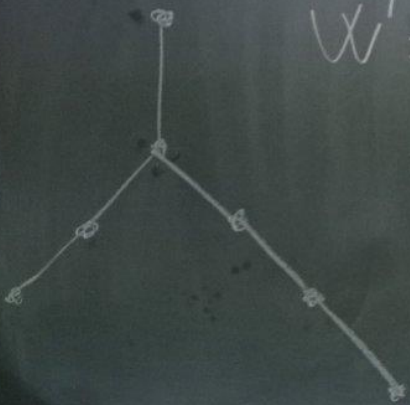




$$W = u v_1 \dots v_h v_{h+1} \dots v_k w$$

$$W' = u v_1 \dots v_h v_k w$$



Prove: If  $G$  is a tree  
 Then at each path of  $G$

- DEF - A distance on a set  $X \neq \emptyset$   
 such that  $\forall x, y, z \in X$
- 1)  $d(x, y) \geq 0$  and  $d(x, y) = 0 \Leftrightarrow x = y$
  - 2)  $d(x, y) = d(y, x)$
  - 3)  $d(x, z) \leq d(x, y) + d(y, z)$

DEF  
 is a  
 a dist

$v_1, v_2, \dots, v_k$  ---  $w$  Prove: If  $G$  simple,  $\delta \geq k$   
 Then at each vertex at least one path of at least length  $k$  starts.

$w$   
 distance on a set  $X \neq \emptyset$  is a function  $d: X \times X \rightarrow \mathbb{R}$

$\forall x, y, z \in X$   
 and  $d(x, x) = 0 \Leftrightarrow x = y$   
 $d(x, y) + d(y, z) \geq d(x, z)$

DEF - A metric space  
 is a pair  $(X, d)$ , where  $d$  is  
 a distance on  $X$

