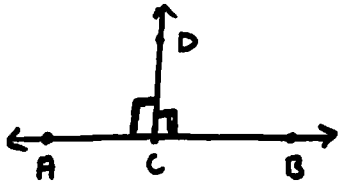
Proving lines are <u>Perpendicular</u> Theorems:

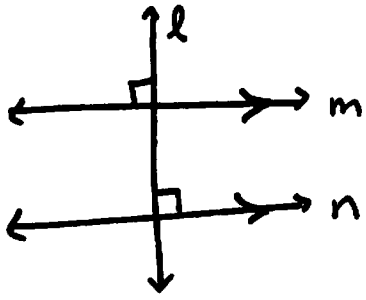
Thereom: If two intersecting lines form a linear pair of congruent angles, then the lines are perpendicular

An easy way to write: **2 congruent linear pair angles ----- perpendicular lines**



$\boxed{\overline{DC} \perp AB}$

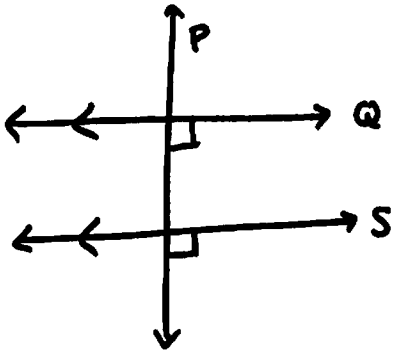
Perpendicular Transversal Theorem: In a plane, if a transversal is perpendicular to one of two parallel lines, then it is perpendicular to the other line.



- if l is $\perp$ to m, then l is $\perp$ to n.

Theorem: If two coplanar lines are perpendicular to the same line, then the two lines are parallel to each other.

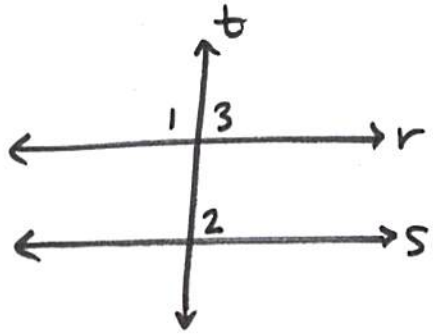
An easy way to write: **if you have 2 lines perpendicular to same line, the lines are parallel**



- if Q & S are $\perp$ to P, then Q & S are $\parallel$.

Ex: Given: $r \parallel s$; $\angle 1 \cong \angle 2$

Prove: $r \perp t$



Statement	Reason
① $r \parallel s$	① Given
② $\angle 2 \cong \angle 3$	② corresponding $\angle$'s post.
③ $\angle 1 \cong \angle 2$	③ Given
④ $\angle 1 \cong \angle 3$	④ Transitive Prop.
⑤ $r \perp t$	⑤ If linear pair $\angle$'s are $\cong$, the lines are $\perp$.