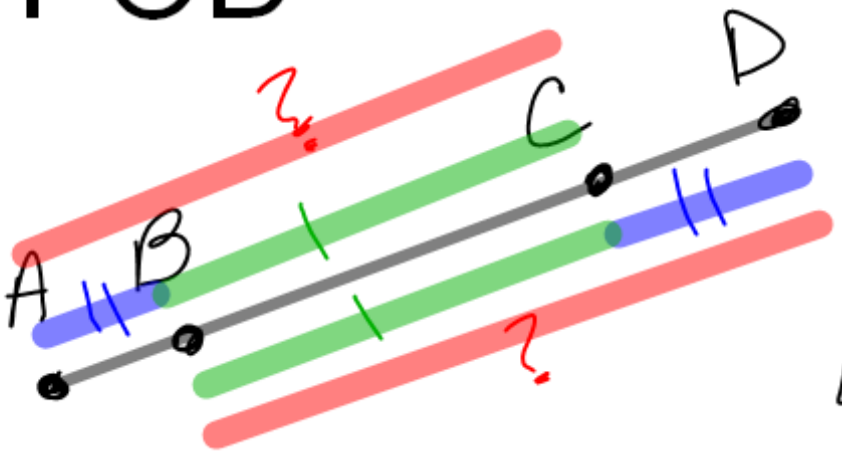
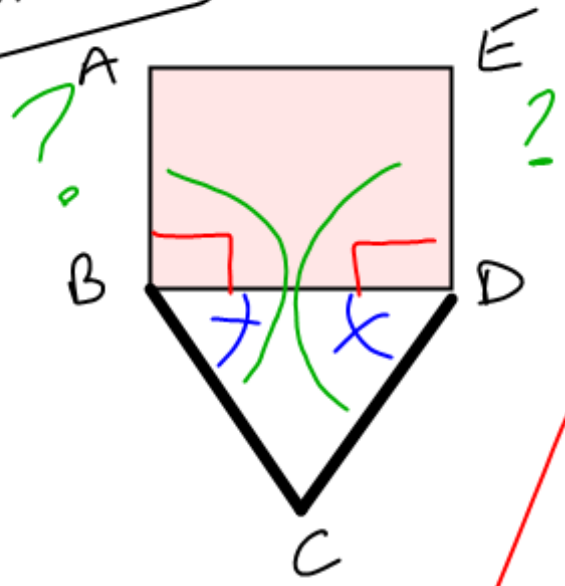
POD



- Given: $\overline{AB} \cong \overline{CD}$
- Prove: $\overline{AC} \cong \overline{BD}$

S	R
1) $\overline{AB} \cong \overline{CD}$	1) Given
2) $AB + BC = AC$ $CD + BC = BD$	2) SAP
3) $AB = CD$	3) Def of $\cong$ segs
4) $AB + BC = AC$ $AB + BC = BD$	4) Substitution
5) $AC = BD$	5) Transitive
6) $\overline{AC} \cong \overline{BD}$	6) Def of $\cong$ segs

EX 5)

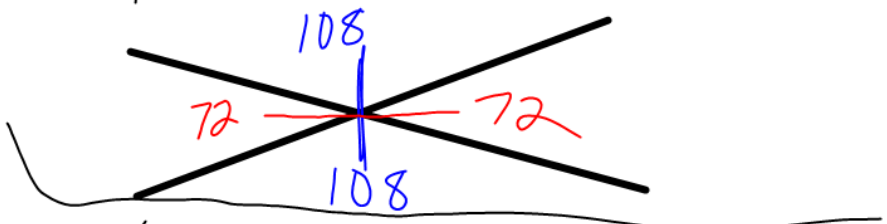


Given: $\angle CBD \cong \angle CDB$
- $\angle ABD$ > right angles
- $\angle EDB$

Prove: $\angle ABC \cong \angle EDC$

S	R
①	① Given
② $m\angle CBD = m\angle CDB$	② Def of $\cong$ $\angle$s
③ $m\angle ABD = 90$, $m\angle EDB = 90$	③ Def of Rights $\angle$s
④ $m\angle ABD + m\angle CBD = m\angle ABC$, $m\angle EDB + m\angle CDB = m\angle EDC$	④ AAP
⑤ $90 + m\angle CBD = m\angle ABC$, $90 + m\angle CDB = m\angle EDC$	⑤ Substitution
⑥ $90 + m\angle CBD = m\angle ABC$, $90 + m\angle CBD = m\angle EDC$	⑥ Substitution
⑦ $m\angle ABC = m\angle EDC$	⑦ Transitive
⑧ $\angle ABC \cong \angle EDC$	⑧ Def of $\cong$ $\angle$s

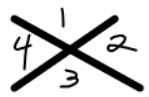
Vertical Angles (Definition): 2 angles across from each other where 2 lines intersect.



Theorem:

VAT → Vertical Angles are congruent.

If 2 angles are vertical angles, Then they are congruent.



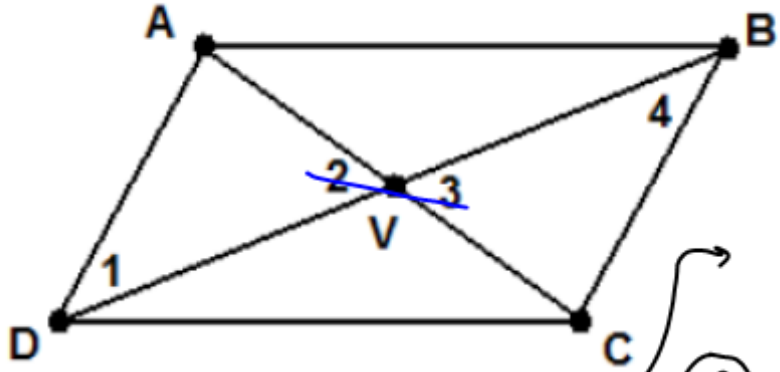
Given: $\angle 1, \angle 3$ are vertical $\angle$s

Prove: $\angle 1 \cong \angle 3$

S	R
① $\angle 1, \angle 2$ form a line $\angle 2, \angle 3$ form a line	① Given
② $m\angle 1 + m\angle 2 = 180$ $m\angle 2 + m\angle 3 = 180$	② Def of Line
③ $m\angle 1 + m\angle 2 = m\angle 2 + m\angle 3$	③ Transitive
④ $m\angle 1 = m\angle 3$	④ Subtraction
⑤ $\angle 1 \cong \angle 3$	⑤ Def of $\cong$ $\angle$s

How to use this!

$\angle 3 \cong \angle 4$ | VAT



Given:

∠1 is complementary to ∠3
∠4 is complementary to ∠2

Prove:

∠1 ≅ ∠4

S	R
①	① Given
② $m\angle 1 + m\angle 3 = 90$, $m\angle 4 + m\angle 2 = 90$	② Def of comp. ∠s
③ $m\angle 1 + m\angle 3 = m\angle 4 + m\angle 2$	③ Transitive
④ $\angle 2 \cong \angle 3$	④ VAT
⑤ $m\angle 2 = m\angle 3$	⑤ Def of ≅ ∠s
⑥ $m\angle 1 + m\angle 2 = m\angle 4 + m\angle 2$	⑥ Substitution
⑦ $m\angle 1 = m\angle 4$	⑦ Subtraction
⑧ $\angle 1 \cong \angle 4$	⑧ Def of ≅ ∠s