Complementary = 90°

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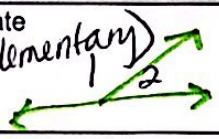
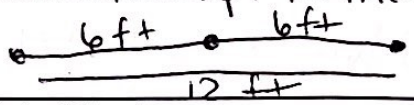
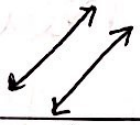
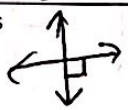
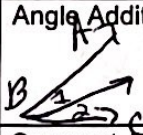
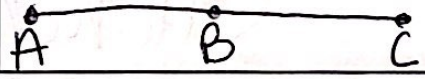
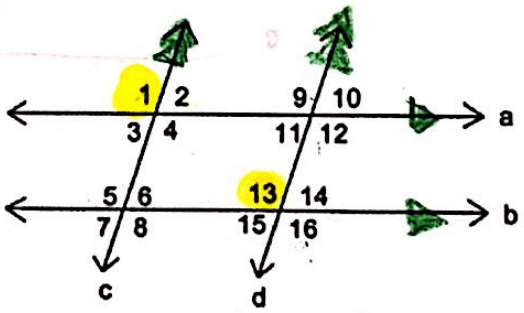
GUIDED NOTES: Proofs with Lines and Triangles

What can we use to prove?		
Def. of Vertical Angles ∠1 & ∠3 ≅ ∠4 & ∠2 ≅ 	**Linear Pair Postulate** = 180 (Supplementary) adjacent 	**Def. of Midpoint** ⇒ pt in middle 
Def. of Supplementary Angles = 180	**Corresponding Angle Postulate** ≅	**Def. of Bisect** Splits into 2 equal parts (angles & segments)
Def. of Parallel Lines don't intersect 	**Alternate Exterior Angle Theorem** ≅ 	**Substitution Property** if x = y then we can substitute x in for y "replace"
Def. of Perpendicular Lines intersect & form 90° 	**Alternate Interior Angle Theorem** ≅ 	**Angle Addition Postulate**  m∠1 + m∠2 = m∠B
Reflexive Property (AB = AB) Shared side 	**Transitive Property** (a = b, b = c, then a = c) a = b = c	**Segment Addition Postulate** AB + BC = AC 

// → parallel

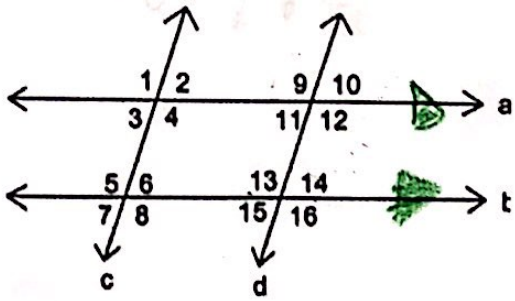
EX1. Given: a || b and c || d
Prove: ∠1 ≅ ∠13

Statement:	Reason:
a∥b & c∥d	Given
∠1 ≅ ∠9	Corresponding ∠s
∠9 ≅ ∠13	Corresponding ∠s
∠1 ≅ ∠13	Transitive Property

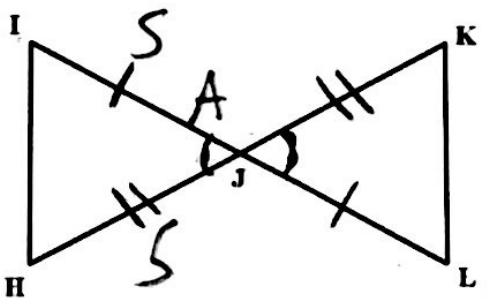


EX2. Given a || b
Prove: m∠9 + m∠14 = 180°

Statement:	Reason:
a∥b	Given
∠9 ≅ ∠13	Corresponding ∠s
m∠13 + m∠14 = 180	Linear Pair
m∠9 + m∠14 = 180	Substitution Property.

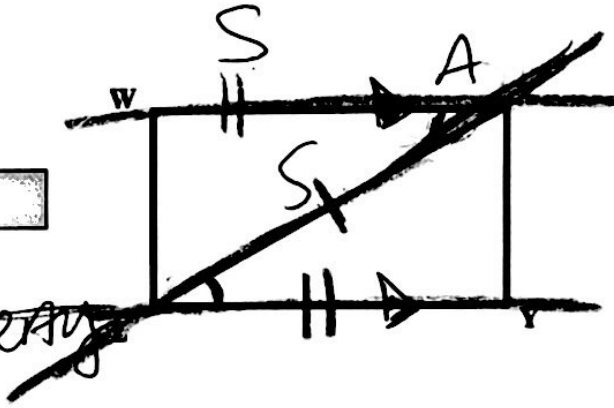


EX3. Given: J is the midpoint of IL.
J is the midpoint of HK.
Prove: $\Delta IJH \cong \Delta LJK$



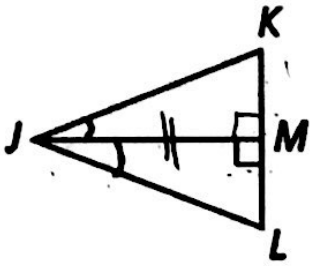
Statement:	Reason:
J is midpt of $\overline{IL}$	Given
$\overline{IJ} \cong \overline{JL}$	def of midpt
J is the midpt of $\overline{HK}$	Given
$\overline{HJ} \cong \overline{JK}$	def of midpt
$\angle IJH \cong \angle KJL$	vertical $\angle$s
$\Delta IJH \cong \Delta LJK$	by SAS

EX4. Given: WX || YZ, WX ≅ YZ
Prove: $\Delta WXZ \cong \Delta YZX$



Statement:	Reason:
$\overline{WX} \parallel \overline{YZ}$, $\overline{WX} \cong \overline{YZ}$	Given
$\overline{ZX} \cong \overline{ZX}$	Reflexive Property
$\angle WXZ \cong \angle YZX$	Alt Int $\angle$s
$\Delta WXZ \cong \Delta YZX$	by SAS

EX5. Given: $\overline{JM}$ bisects $\angle J$
$\overline{JM} \perp \overline{KL}$
Prove: $\Delta JMK \cong \Delta JML$



Statement:	Reason:
$\overline{JM}$ bisects $\angle J$	Given
$\angle KJM \cong \angle MJL$	def of bisects
$\overline{JM} \perp \overline{KL}$	Given
$\angle JMK$ & $\angle JML$ are R $\angle$s $= 90°$	def of $\perp$
$\overline{JM} \cong \overline{JM}$	Reflexive Property
$\Delta JMK \cong \Delta JML$	by ASA