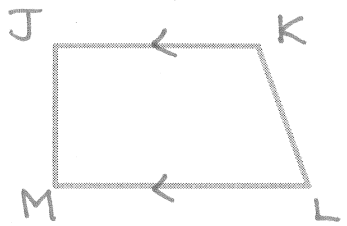
H.Geometry – Chapter 5– Definition Sheet

Section 5.3 (Day 1)

Recall:
Definition of a Trapezoid



A quadrilateral with at least one pair of parallel sides

bases - 2 parallel sides $\overline{JK}$, $\overline{ML}$

legs - 2 non-parallel sides $\overline{JM}$, $\overline{KL}$

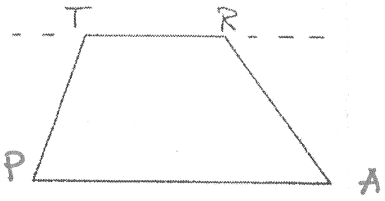
base angles - angles at both ends of the base ∠M and ∠L, ∠J and ∠K

consecutive angles - angles at both ends of a leg between bases ∠J and ∠M, ∠K and ∠L

INVESTIGATION PROOF:

GIVEN: Trapezoid TRAP w/bases TR and AP

PROVE: <T and <P are suppl.



CONCLUSIONS	JUSTIFICATIONS
0. TRAPEZOID TRAP WITH BASES $\overline{TR}$ AND $\overline{AP}$	0. GIVEN
1. $\overline{TR} \parallel \overline{PA}$	1. Defn. of trapezoid
2. ∠T and ∠P are supp.	2. SSIA Theorem.

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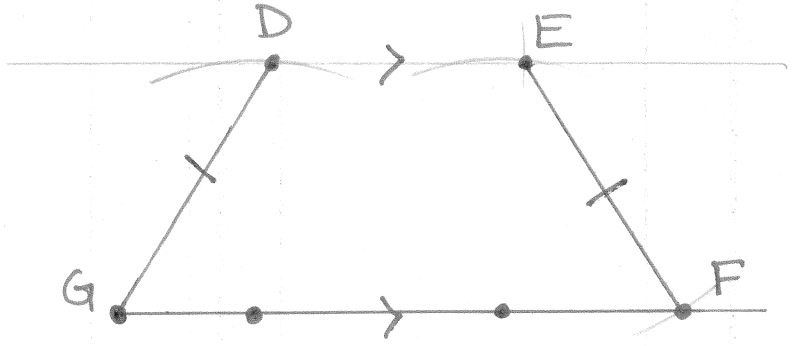
Recall: **Definition of Isosceles Trapezoid** measure base angles	A trapezoid with two congruent legs CONSTRUCT: Isosceles Trapezoid (what can you conclude?)  - base angles are congruent
Isosceles Trapezoid Theorem	Both sets of base angles in an isosceles trapezoid are congruent. $\angle D \cong \angle E$ $\angle G \cong \angle F$

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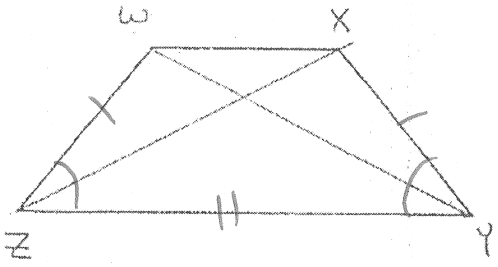

GIVEN: ISOSCELES TRAPEZOID WXYZ WITH BASES $\overline{WX}$ AND $\overline{YZ}$

PROVE: $\overline{WY} \cong \overline{XZ}$

CONCLUSIONS	JUSTIFICATIONS
0. Isosceles Trapezoid WXYZ with Bases $\overline{WX}$ & $\overline{YZ}$	0. Given
1. $\overline{WZ} \cong \overline{XY}$	1. Defn. of Isosceles Trapezoid
2. $\angle WZY \cong \angle XYZ$	2. Isosceles Trapezoid Theorem
3. $\overline{ZY} \cong \overline{ZY}$	3. Reflexive
4. $\triangle WZY \cong \triangle XYZ$	4. SAS $\cong$
5. $\overline{WY} \cong \overline{XZ}$	5. CPCTC

Isosceles Trapezoid Diagonals Theorem

The diagonals of an isosceles trapezoid are congruent