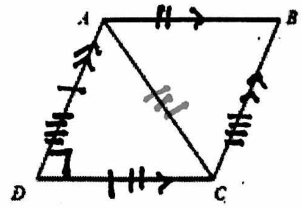
GUIDED NOTES: Proofs with Quadrilaterals

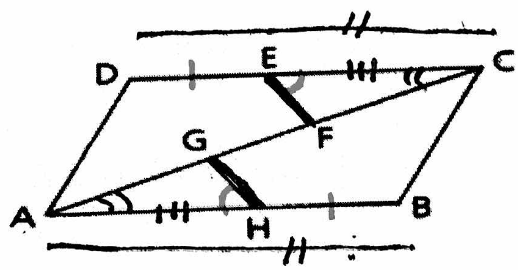
EX1. Given: ABCD is a parallelogram.
$\angle ADC$ is a right angle
$AD \cong DC$
Prove: ABCD is a square



ABCD is a parallelogram	Given
$\angle ADC$ is right angle	Given
$\overline{AD} \cong \overline{DC}$	Given
$\overline{AB} \cong \overline{DC}$	Defn' of parallelogram
$\overline{AC} \cong \overline{AC}$	Reflexive
$\overline{AD} \cong \overline{BC}$	Defn' of parallelogram
$\angle ADC \cong \angle DAB \cong \angle BCD \cong CBA = 90°$	Defn' of parallelogram
$\overline{AD} \cong \overline{DC} \cong \overline{CB} \cong \overline{AB}$	Transitive
ABCD is square	Defn' of square (all sides $\cong$, all $90° \angle s$)

3.

Given: ABCD is a ▱ (parallelogram).
$\angle GHA \cong \angle FEC$,
$\overline{HB} \cong \overline{DE}$
Conclusion: $\overline{GH} \cong \overline{EF}$



ABCD is ▱	Given
$\angle GHA \cong \angle FEC$	Given
$\overline{HB} \cong \overline{DE}$	Given
$\angle HAG \cong \angle ECF$	Alt. int. $\angle s$
$\overline{AB} \cong \overline{DC}$	Defn of ▱
$\overline{AB} - \overline{HB} = \overline{AH}$ $\overline{DC} - \overline{DE} = \overline{EC}$	Segment Subt. Prop.
$\overline{AH} \cong \overline{EC}$	Substitution Prop.
$\triangle HAG \cong \triangle ECF$	ASA
$\overline{GH} \cong \overline{EF}$	CPCTC