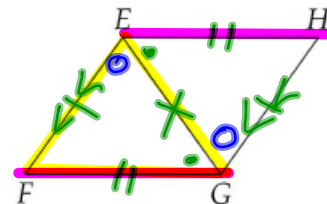


Application of \cong Δ 's.

3.2.1 $EF = GH$ and $FG = EH$ in the diagram at right.



✓(a) Prove that $\triangle EFG \cong \triangle GHE$.

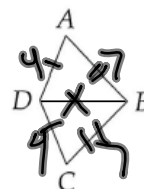
✓(b) Show that $\angle EGF = \angle GEH$.

✓(c) Show that $\overline{HE} \parallel \overline{FG}$.

(d) Show that $\overline{HG} \parallel \overline{EF}$.

Statement	Reason
③ $\triangle EFG \cong \triangle GHE$	SSS
④ $\angle EGF \cong \angle GEH$	corresponding parts in $\cong \Delta$'s are \cong . } CPCTC
⑤ $\overline{HE} \parallel \overline{FG}$	If alt. int. \angle 's are \cong the given lines are \parallel .
⑥ $\angle FEG \cong \angle HGE$	CPCTC
⑦ $\overline{HG} \parallel \overline{EF}$	If alt. int. \angle 's are \cong the given lines are \parallel .

3.2.3 In the diagram at right, $AB = 7$, $AD = 4$, $CD = 4$, and $BC = 7$. Prove that $\angle ABD = \angle CBD$. Hints: 165



Statement	Reasons
① $\overline{AB} = 7$ $\overline{BC} = 7$	① Given
$\overline{AD} = 4$ $\overline{CD} = 4$	①.5 Since they have the same length, they are =.
② $\overline{BD} \cong \overline{BD}$	② Reflexive (substitution)
③ $\triangle ABD \cong \triangle CBD$	③ SSS
④ $\angle ABD \cong \angle CBD$	④ CPCTC

①.5
 $AB = BC$
 $AD = CD$

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