5-11-18 5th Geo

Betweeness of Points

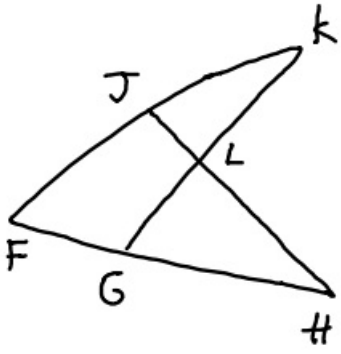
If 3 points are collinear and B is between A and C, then AB + BC = AC.

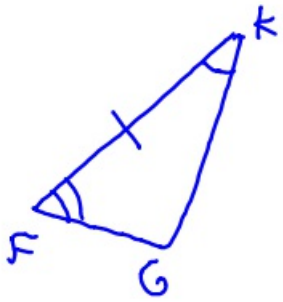
AB + BC = AC

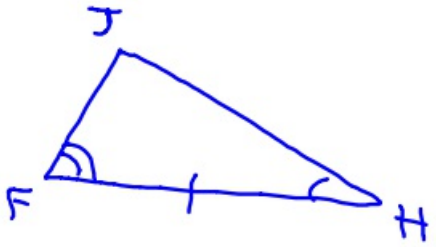
① Given $\overline{FK} \cong \overline{FH}$

$\angle H = \angle K$

Prove: JH = GK





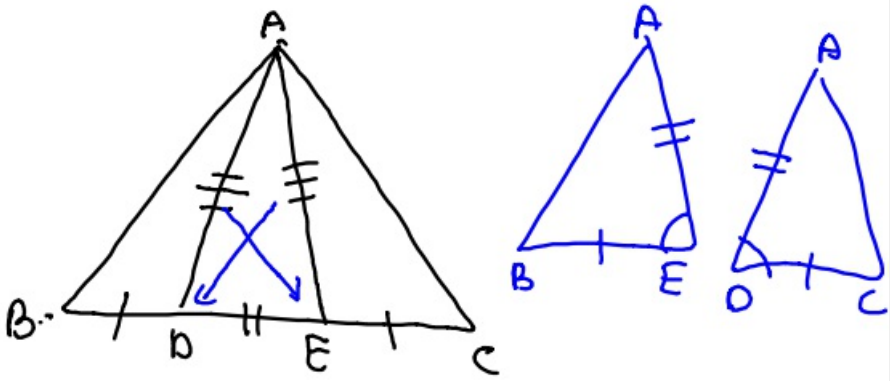


Statement	Justification
① $\overline{FK} \cong \overline{FH}$	① Given
② $\angle H = \angle K$	② Given
③ $\angle F = \angle F$	③ Reflexive
④ $\triangle KFG \cong \triangle FHJ$	④ ASA
⑤ JH = GK	⑤ CPCTC

② Given: $BD = EC$

$AD = AE$

Prove: $\triangle BAE \cong \triangle CAD$



Statement	Justification
① $BD = EC$	① Given
② $DE = DE$	② Reflexive
③ $BD + DE = EC + DE$	③ Addition of lines 1 & 2
④ $BE = BD + DE$	④ Betweeness of Pts. Theorem
⑤ $DC = DE + EC$	⑤ Bet. of Pts. Th.
⑥ $BE = DC$	⑥ Substitution (lines 3, 4, & 5)
⑦ $AD = AE$	⑦ Given
⑧ $\angle AEB = \angle ADC$	⑧ If 2 sides of a $\triangle$ are =, opposite $\angle$'s are =.
⑨ $\triangle BAE \cong \triangle CAD$	⑨ SAS

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5-11-18 6th Geo

Betweeness of Points

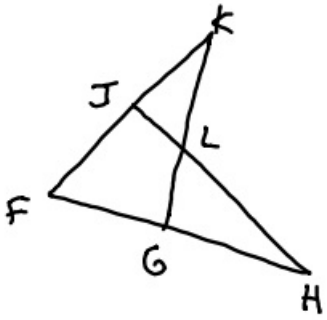
If 3 points are collinear with B between A & C, then

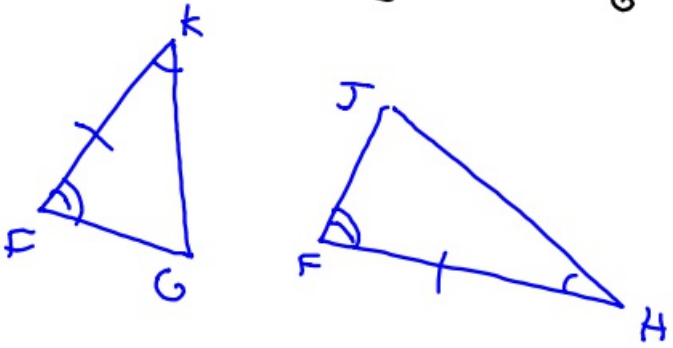
$AB + BC = AC$

Given: $\overline{FK} = \overline{FH}$

$\angle H = \angle K$

Prove: $JH = GK$



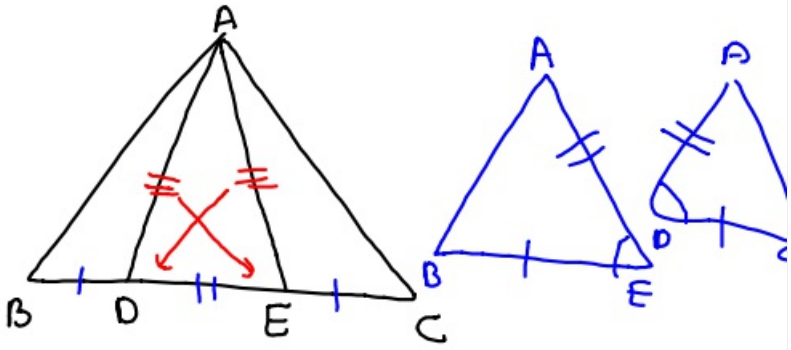


Statement	Justification
① $\overline{FK} \cong \overline{FH}$	① Given
② $\angle H = \angle K$	② Given
③ $\angle F = \angle F$	③ Reflexive
④ $\triangle KFG \cong \triangle HFJ$	④ ASA
⑤ $JH = GK$	⑤ CPCTC

Given: $BD = EC$

$AD = AE$

Prove: $\triangle BAE \cong \triangle CAD$



Statement	Justification
① $BD = EC$	① Given
② $DE = DE$	② Reflexive
③ $BD + DE = CE + DE$	③ Addition of lines 1 & 2
④ $BE = BD + DE$	④ Def. of Betweenness of Points
⑤ $DC = DE + EC$	⑤ Def. of Bet. Pts.
⑥ $BE = DC$	⑥ Substitution (lines 3, 4, & 5)
⑦ $AD = AE$	⑦ Given
⑧ $\angle ADE = \angle AED$	⑧ If 2 $\angle$'s are $=$ in a $\triangle$, then opp. $\angle$'s are $=$.
⑨ $\triangle BAE \cong \triangle CAD$	⑨ SAS