Geometry Honors
Proof Template

7.5

Name Key

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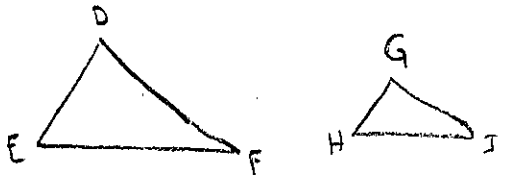
Diagram:



Given: $\frac{DE}{GH} = \frac{DF}{GI} = \frac{EF}{HI}$

Prove: $\angle E \cong \angle H$

Statement	Reason
1. $\frac{DE}{GH} = \frac{DF}{GI} = \frac{EF}{HI}$	1. Given
2. $\triangle DEF \sim \triangle GHI$	2. SSS ~ Th.
3. $\angle E \cong \angle H$	3. ~ $\triangle$s → corr. $\angle$s $\cong$

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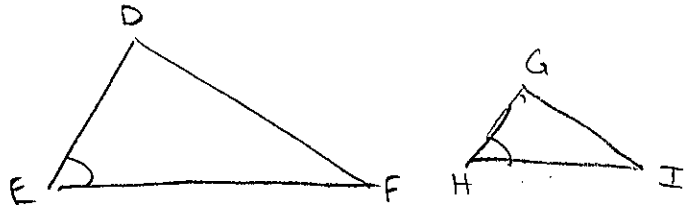
Diagram:



Given: $\frac{DE}{GH} = \frac{EF}{HI}$; $\angle E \cong \angle H$

Prove: $\frac{EF}{HI} = \frac{DF}{GI}$

Statement	Reason
1. $\frac{DE}{GH} = \frac{EF}{HI}$; $\angle E \cong \angle H$	1. Given
2. $\triangle EDF \sim \triangle HGI$	2. SAS ~ Th.
3. $\frac{EF}{HI} = \frac{DF}{GI}$	3. ~ $\triangle$'s → corr. sides prop.

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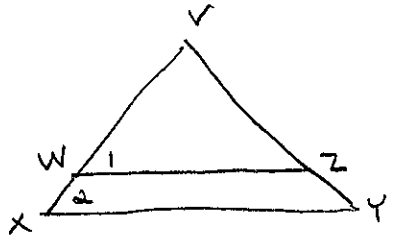
Given: $\frac{VW}{VX} = \frac{VZ}{VY}$

Prove: $\overline{WZ} \parallel \overline{XY}$

Diagram:



Statement	Reason
1. $\frac{VW}{VX} = \frac{VZ}{VY}$	1. Given
2. $\angle V \cong \angle V$	2. Reflexive
3. $\triangle VWZ \sim \triangle VXY$	3. SAS ~ Th.
4. $\angle 1 \cong \angle 2$	4. ~ $\triangle$s → corr. $\angle$s $\cong$
5. $\overline{WZ} \parallel \overline{XY}$	5. corr. $\angle$s $\cong$ → $\parallel$ lines

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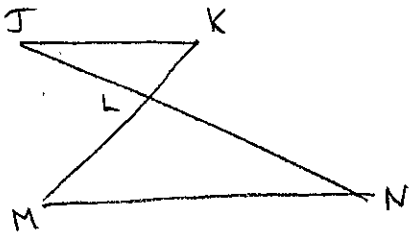
Given: $\frac{JL}{NL} = \frac{KL}{ML}$

Prove: $\angle J \cong \angle N$

Diagram:



Statement	Reason
1. $\frac{JL}{NL} = \frac{KL}{ML}$	1. Given
2. $\angle JLK \cong \angle MLN$	2. Vert. $\angle$s $\cong$
3. $\triangle JLK \sim \triangle NLM$	3. SAS ~ Th.
4. $\angle J \cong \angle N$	4. ~ $\triangle$s → corr. $\angle$s $\cong$

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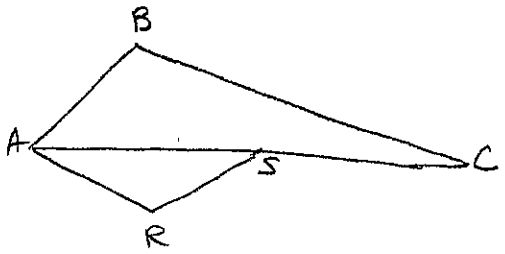
Diagram:



Given: $\frac{AB}{SR} = \frac{BC}{RA} = \frac{CA}{AS}$

Prove: $\overline{BC} \parallel \overline{AR}$

Statement	Reason
1. $\frac{AB}{SR} = \frac{BC}{RA} = \frac{CA}{AS}$	1. Given
2. $\triangle ABC \sim \triangle SRA$	2. SSS ~ Th.
3. $\angle RAS \cong \angle BCS$	3. $\sim \triangle$s → corr. $\angle$s $\cong$
4. $\overline{BC} \parallel \overline{AR}$	4. Alt. int. $\angle$s $\cong$ → $\parallel$ lines

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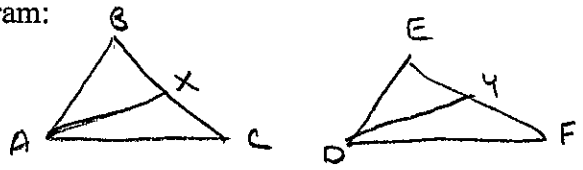
Diagram:



Given: $\triangle ABC \sim \triangle DEF$
$\overline{AX}$ & $\overline{DY}$ are medians

Prove: $\frac{AX}{DY} = \frac{AB}{DE}$

Statement	Reason
1. $\overline{AX}$ & $\overline{DY}$ are medians	1. Given
2. X & Y are mdpts.	2. def. median
3. $BX = \frac{1}{2}BC$; $EY = \frac{1}{2}EF$	3. Mdpt. Th.
4. $2BX = BC$; $2EY = EF$	4. mult. prop. =
5. $\triangle ABC \sim \triangle DEF$	5 Given
6. $\angle B \cong \angle E$	6. $\sim \triangle^s \rightarrow$ corr. $\angle^s \cong$
7. $\frac{AB}{DE} = \frac{BC}{EF}$	7. $\sim \triangle^s \rightarrow$ corr. sides prop.
8. $\frac{AB}{DE} = \frac{2BX}{2EY} = \frac{BX}{EY}$	8. Subst.
9. $\triangle ABX \sim \triangle DEY$	9. SAS $\sim$ Thm.
10. $\frac{AX}{DY} = \frac{AB}{DE}$	10. $\sim \triangle^s \rightarrow$ corr. sides prop.

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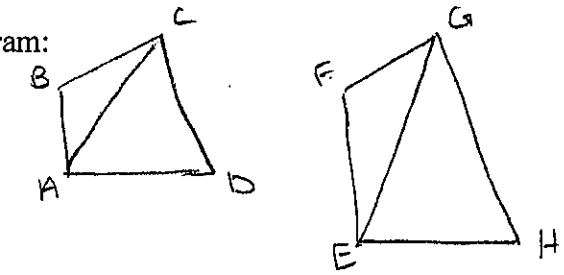
Diagram:



Given: Quad ABCD ~ Quad EFGH

Prove: $\frac{AC}{EG} = \frac{AB}{EF}$

Statement	Reason
1. Quad ABCD ~ Quad. EFGH	1. Given
2. $\angle B \cong \angle F$	2. $\sim \Delta^s \rightarrow$ corr. $\angle^s \cong$
3. $\frac{AB}{EF} = \frac{BC}{FG}$	3. $\sim \Delta^s \rightarrow$ corr. sides prop.
4. $\Delta ABC \sim \Delta EFG$	4. SAS ~ Thm.
5. $\frac{AC}{EG} = \frac{AB}{EF}$	5. $\sim \Delta^s \rightarrow$ corr. sides prop.

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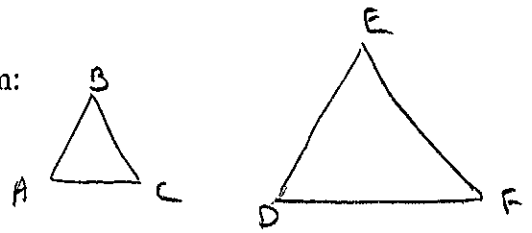
Diagram:



Given: $\triangle ABC$ + $\triangle DEF$ isosc. with vertex $\angle$s B + E
$\angle B \cong \angle E$

Prove: $\triangle ABC \sim \triangle DEF$

Statement	Reason
1. $\triangle ABC$ + $\triangle DEF$ are isosc. with	1. Given
Vertex B + E Respectively	
2. $\overline{AB} \cong \overline{BC}$; $\overline{DE} \cong \overline{EF}$	2. def. isosc.
3. $AB = BC$; $DE = EF$	3. def. $\cong$
4. $\frac{AB}{DE} = \frac{BC}{EF}$	4. div. prop. =
5. $\angle B \cong \angle E$	5. Given
6. $\triangle ABC \sim \triangle DEF$	6. SAS ~ Thm.

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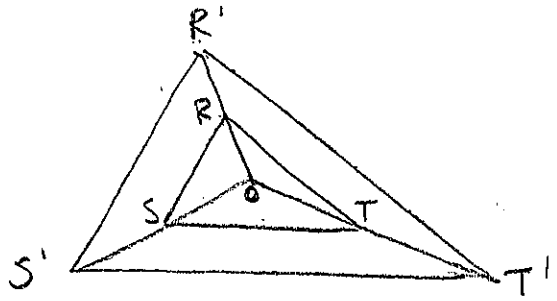
Diagram:



Given: $OR' = 2 \cdot OR$
$OS' = 2 \cdot OS$
$OT' = 2 \cdot OT$

Prove: $\triangle RST \sim \triangle R'S'T'$

Statement	Reason
1. $OR' = 2 \cdot OR$; $OS' = 2 \cdot OS$; $OT' = 2 \cdot OT$	1. Given
2. $OR + RR' = OR'$; $OT + TT' = OT'$	2. Seg. Add'n post.
$OS + SS' = OS'$	
3. $OR + RR' = 2 \cdot OR \rightarrow OR + RR' = OR + OR$	3. Subst.
$OS + SS' = 2 \cdot OS \rightarrow OS + SS' = OS + OS$	
$OT + TT' = 2 \cdot OT \rightarrow OT + TT' = OT + OT$	
4. $RR' = OR$; $SS' = OS$; $TT' = OT$	4. Sub. prop. $=$
5. $\overline{RR'} \cong \overline{OR}$; $\overline{SS'} \cong \overline{OS}$; $\overline{TT'} \cong \overline{OT}$	5. def. $\cong$
6. R, T + S are mdpts.	6. def. mdpt.
7. $RT = \frac{1}{2} R'T'$; $ST = \frac{1}{2} S'T'$; $RS = \frac{1}{2} R'S'$	7. seg. connecting mdpts. of 2 sides of $\triangle$ = $\frac{1}{2}$ length of 3rd side
8. $\frac{RT}{R'T'} = \frac{1}{2}$; $\frac{ST}{S'T'} = \frac{1}{2}$; $\frac{RS}{R'S'} = \frac{1}{2}$	8. div. prop. $=$
9. $\frac{RT}{R'T'} = \frac{ST}{S'T'} = \frac{RS}{R'S'}$	9. Subst.
10. $\triangle RST \sim \triangle R'S'T'$	10. SSS $\sim$ Thm.

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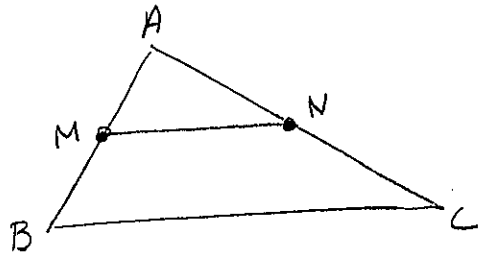
Diagram:



Given: M is mdpt. of $\overline{AB}$
N is mdpt. of $\overline{AC}$

Prove: $\overline{MN} \parallel \overline{BC}$; $MN = \frac{1}{2} BC$

Statement	Reason
1. M is mdpt. of $\overline{AB}$; N is mdpt. of $\overline{AC}$	1. Given
2. $AM = \frac{1}{2} AB$; $AN = \frac{1}{2} AC$	2. Mdpt. Thm.
3. $\frac{AM}{AB} = \frac{1}{2}$; $\frac{AN}{AC} = \frac{1}{2}$	3. div. prop. =
4. $\frac{AM}{AB} = \frac{AN}{AC}$	4. subst.
5. $\angle A \cong \angle A$	5. Reflexive
6. $\triangle ANM \sim \triangle ACB$	6. SAS ~ Thm.
7. $\angle AMN \cong \angle B$	7. ~ $\triangle$'s → corr. $\angle$s $\cong$
* 8. $\overline{MN} \parallel \overline{BC}$	8. corr. $\angle$s $\cong$ → $\parallel$ lines
9. $\frac{MN}{BC} = \frac{AM}{AB}$	9. ~ $\triangle$s → corr. sides prop.
10. $\frac{MN}{BC} = \frac{1}{2}$	10. subst.
* 11. $MN = \frac{1}{2} BC$	11. Mult. prop. =