Proving Inequalities in a Triangle

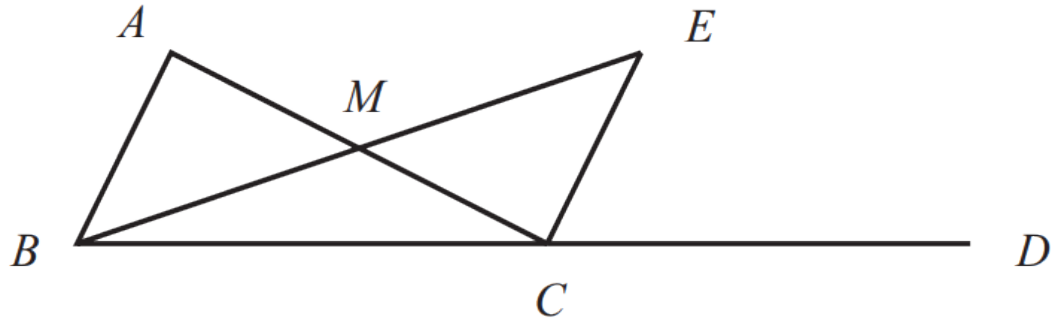
Jonathan R. Bacolod

Sauyo High School

Exterior Angle Inequality Theorem

Given: M is the midpoint of $\overline{AC}$ and $\overline{BE}$

Prove: $m\angle ACD > m\angle A$



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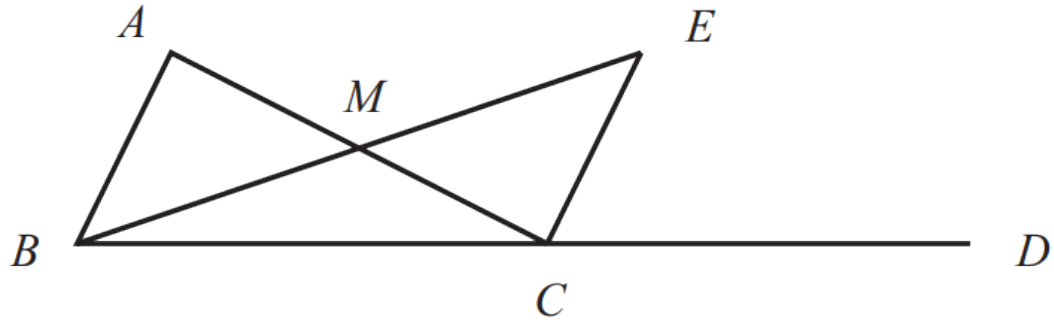

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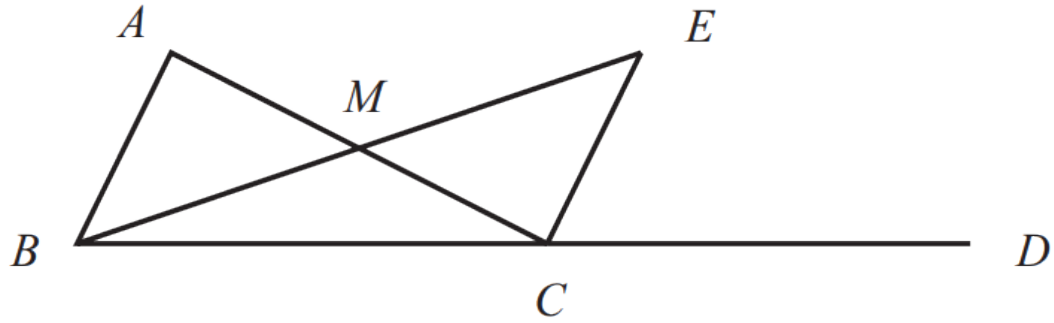

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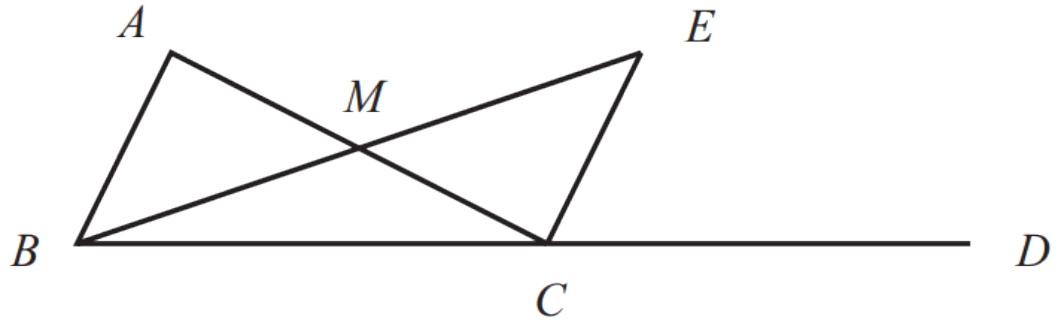

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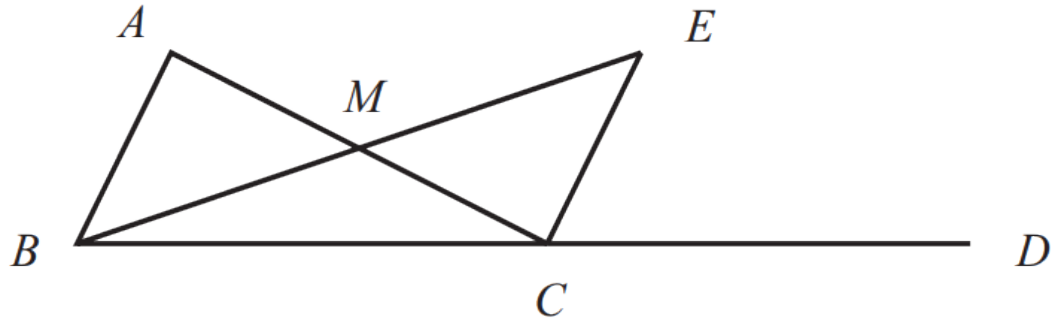

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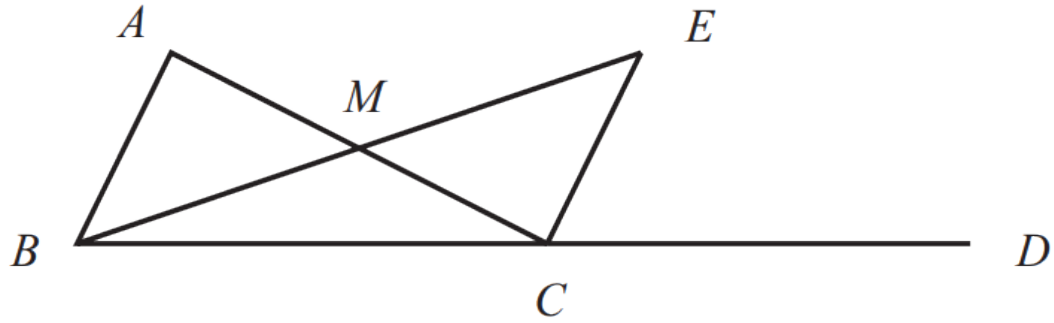

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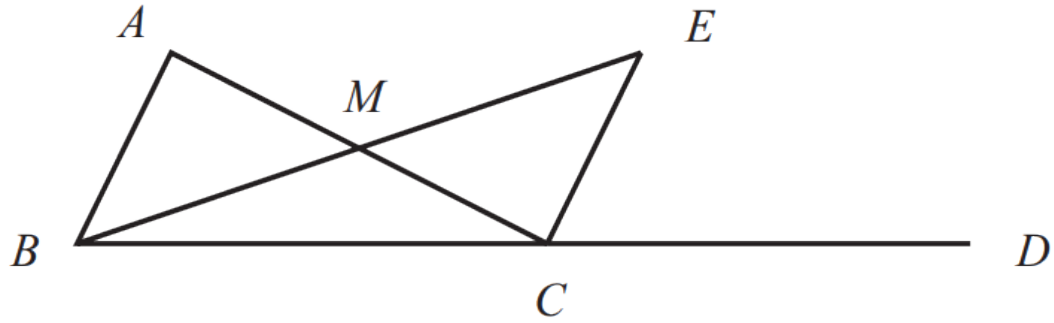

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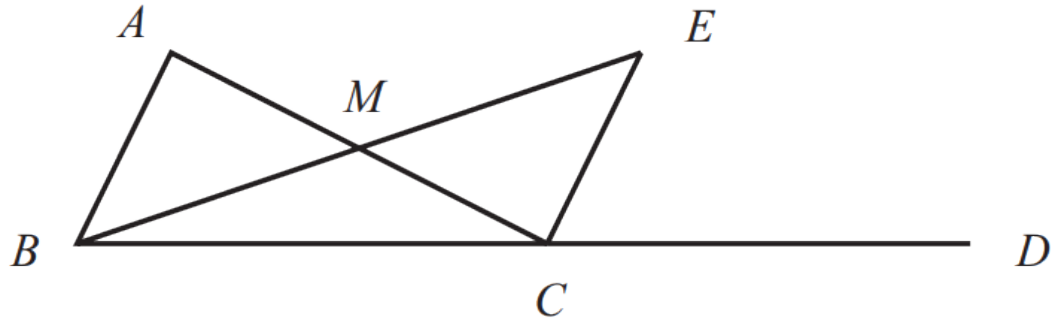

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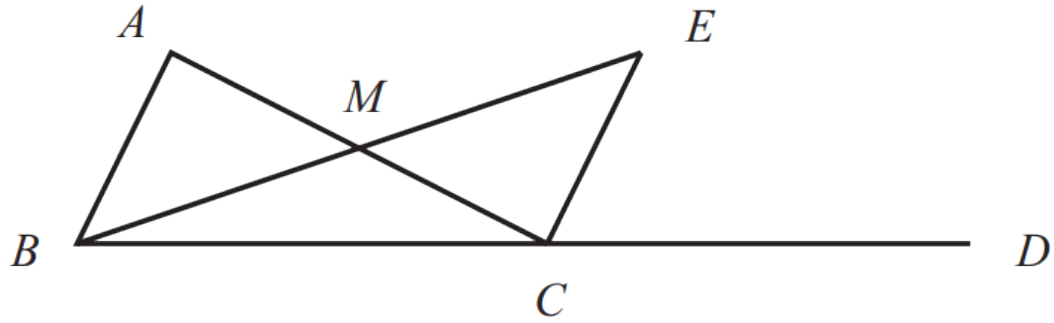

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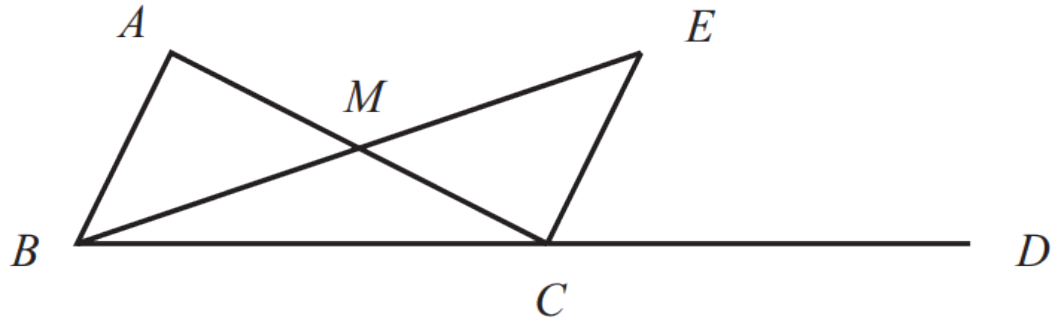

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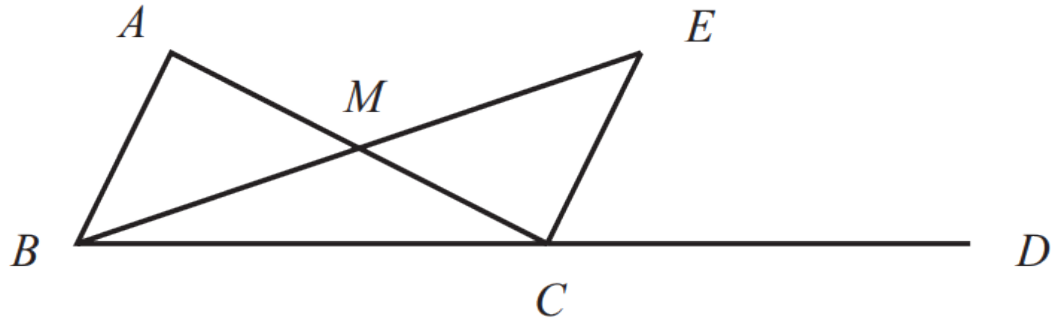

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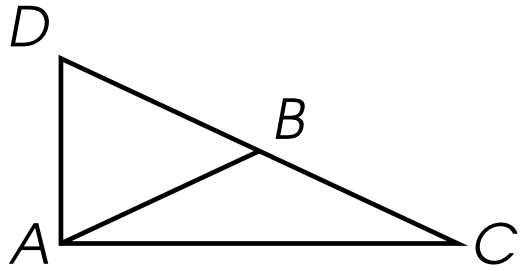

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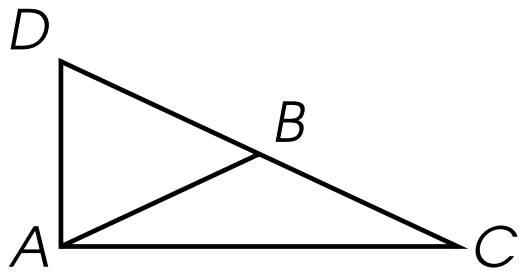

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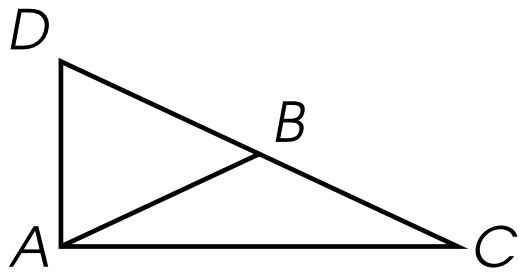

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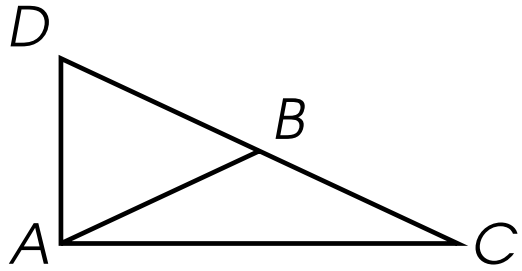

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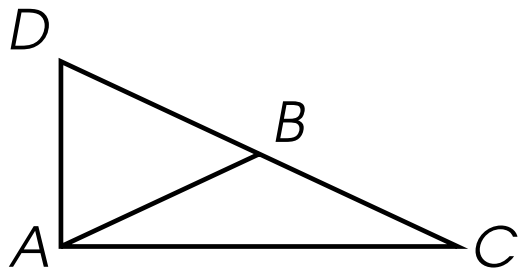

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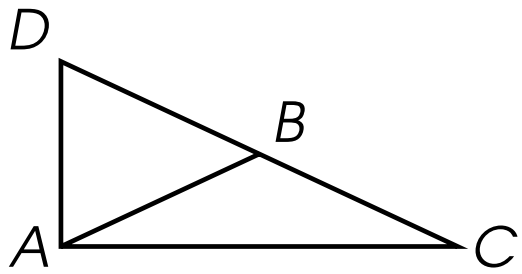

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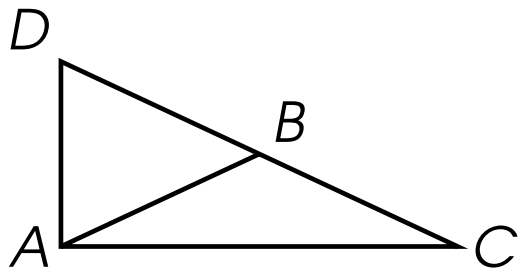

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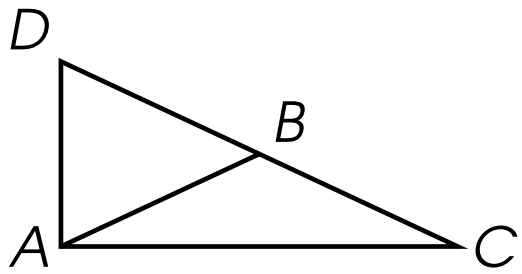

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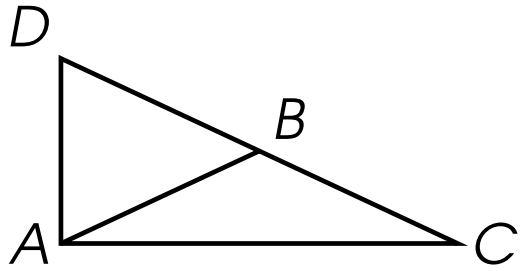

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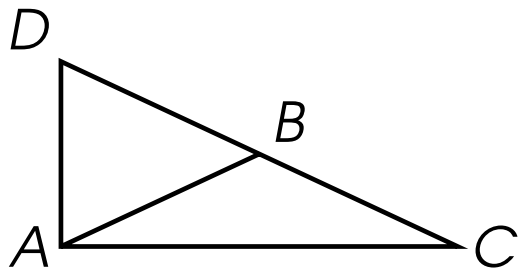

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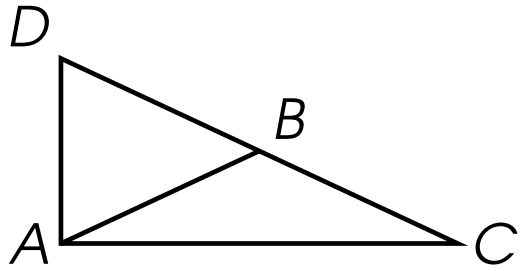

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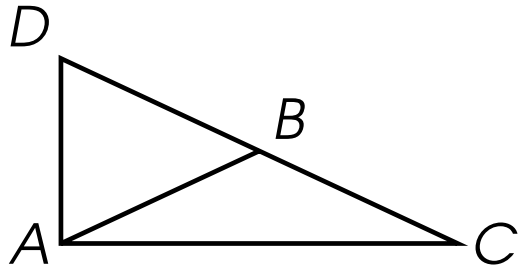

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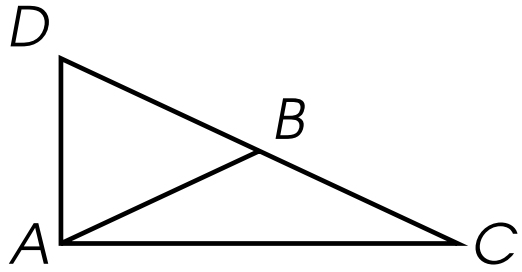

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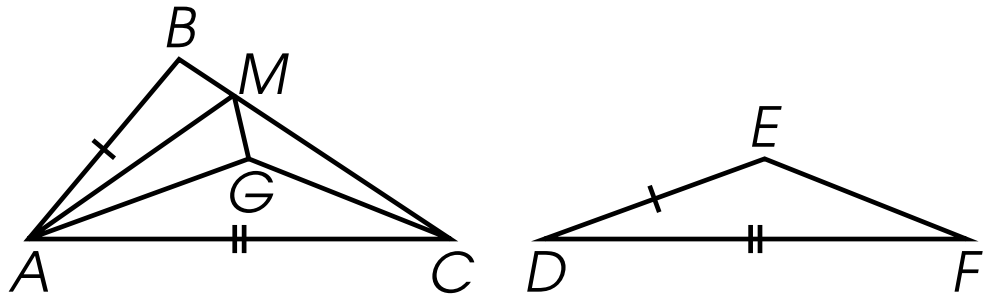
Hinge Theorem

Given: $\overline{AM}$ bisects $\angle BAG$

$\overline{AB} \cong \overline{DE}, \overline{AC} \cong \overline{DF}$

$\triangle AGC \cong \triangle DEF$

Prove: $m\overline{BC} > m\overline{EF}$



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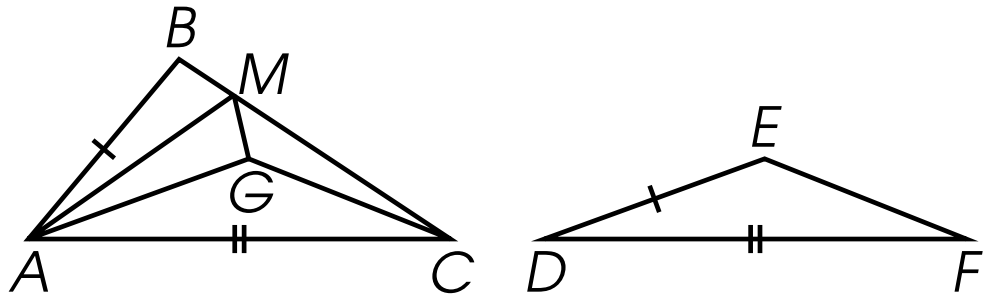

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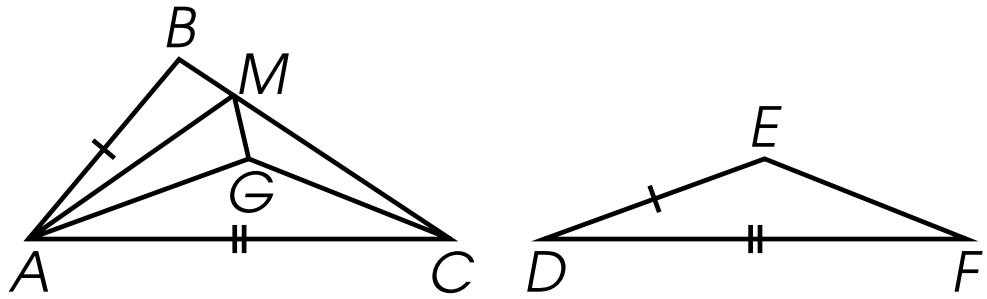
$\triangle AGC \cong \triangle DEF$

Prove: $m\overline{BC} > m\overline{EF}$

Proof:



Statements	Reasons
1. $\triangle AGC \cong \triangle DEF$	1. Given

Hinge Theorem

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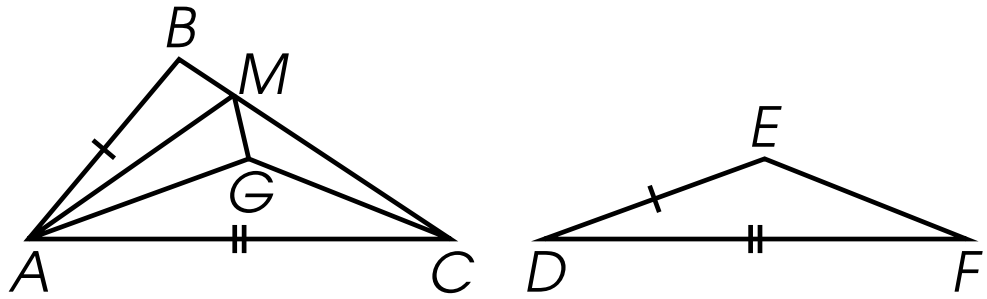

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2. $\overline{AG} \cong \overline{DE}, \overline{GC} \cong \overline{EF}$	2. CPCTC

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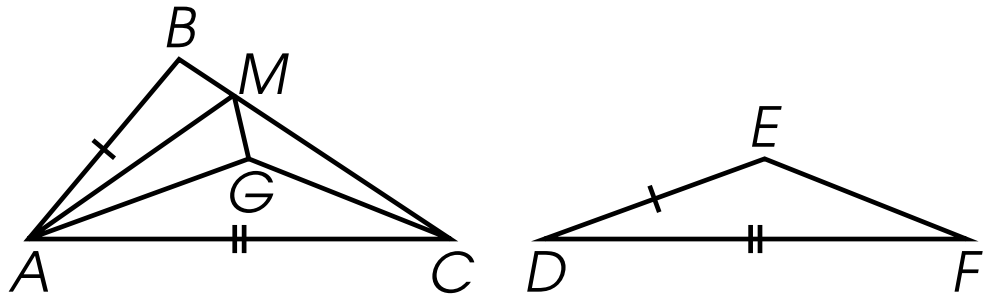

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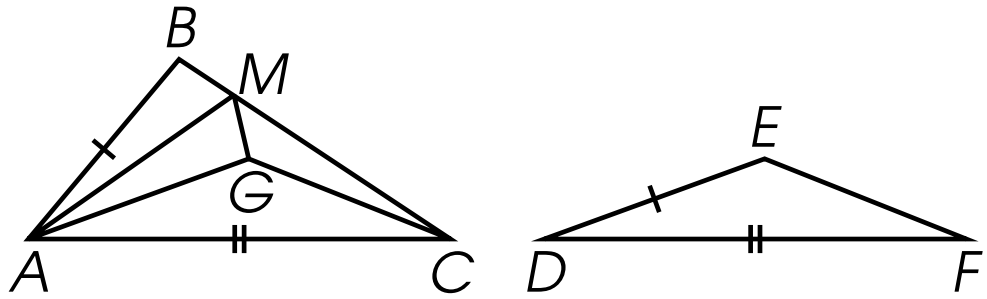

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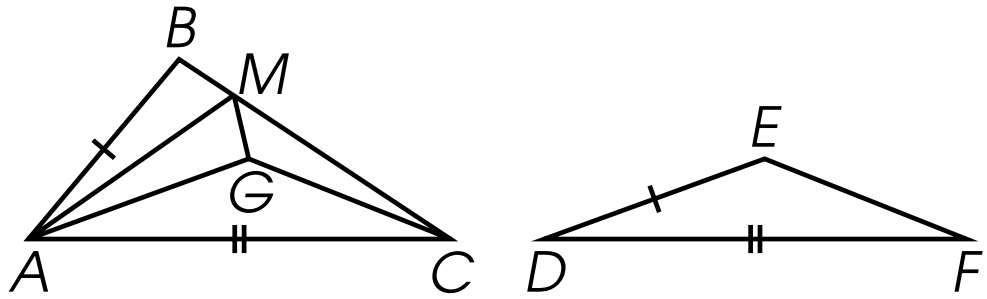

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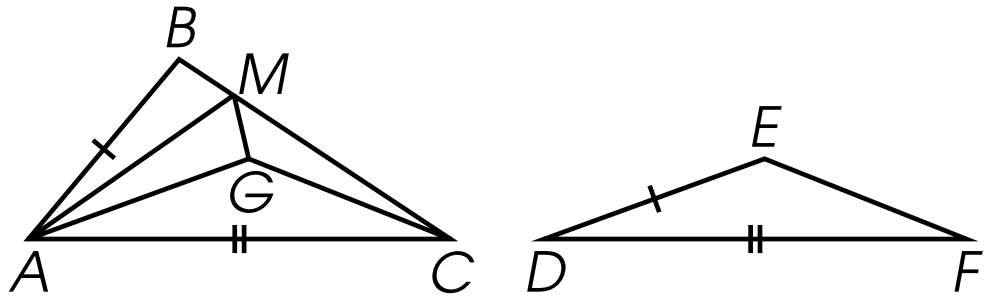

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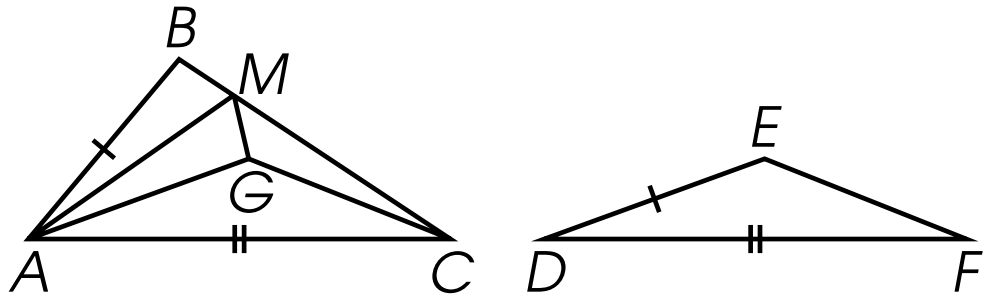

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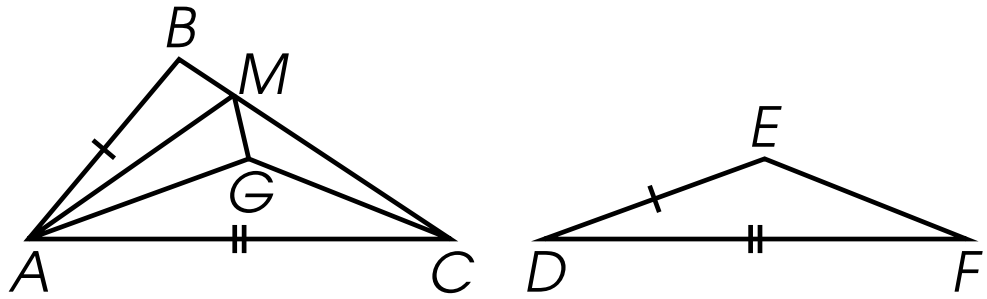

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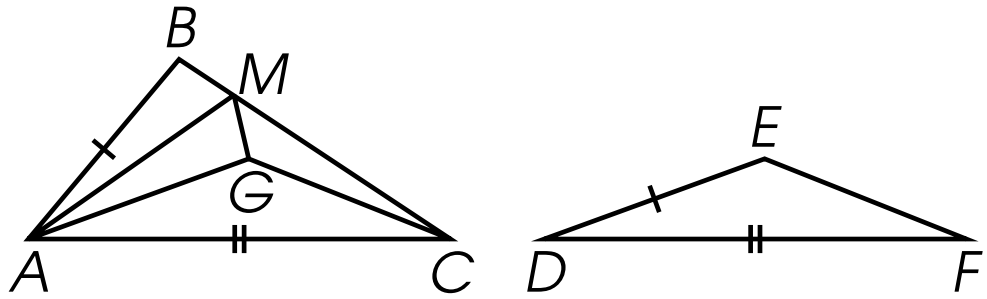

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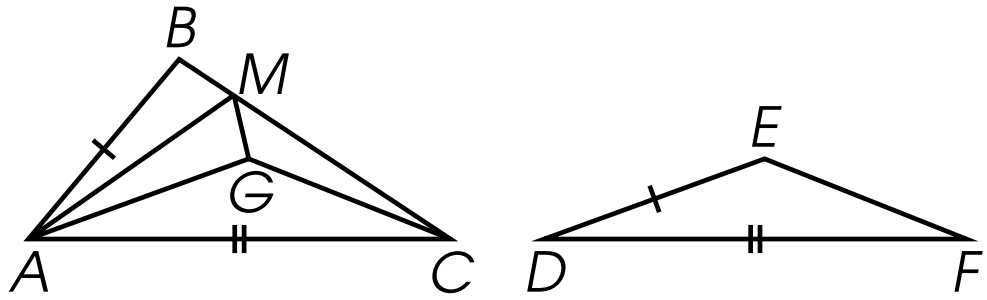

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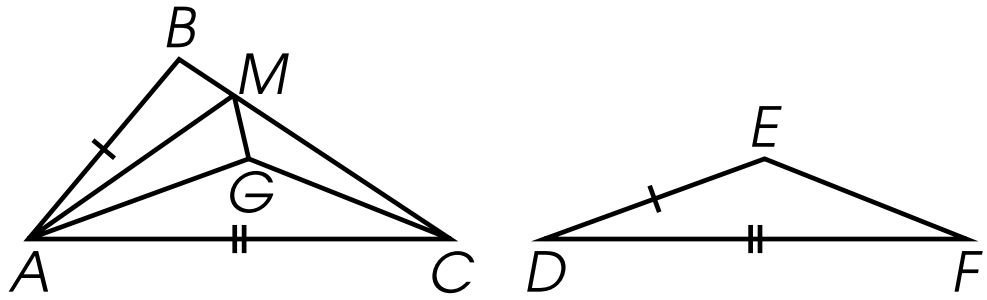

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Thank you for attending the virtual class.