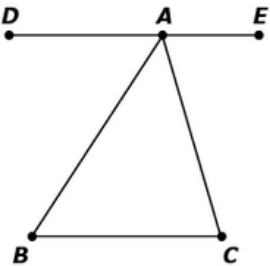


MAFS.912.G-CO.3.10	Prove theorems about triangles; use theorems about triangles to solve problems. <i>Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.</i>
Item Types	<p>Editing Task Choice – May require choosing a statement in a narrative proof.</p> <p>GRID – May require completing a proof as a diagram, such as a flowchart.</p> <p>Hot Text – May require completing a proof by selecting statements.</p> <p>Multiselect – May require identifying statements or values.</p> <p>Multiple Choice – May require selecting from choices.</p> <p>Open Response – May require explaining a proof in a narrative paragraph or providing a justification.</p>
Clarifications	<p>Students will prove theorems about triangles.</p> <p>Students will use theorems about triangles to solve problems.</p>
Assessment Limits	<p>Items may assess theorems and their converses for interior triangle sum, base angles of isosceles triangles, mid-segment of a triangle, concurrency of medians, concurrency of angle bisectors, concurrency of perpendicular bisectors, triangle inequality, and the Hinge Theorem.</p> <p>Items may include narrative proofs, flow-chart proofs, two-column proofs, or informal proofs.</p> <p>In items that require the student to justify, the student should not be required to recall from memory the formal name of a theorem.</p>
Stimulus Attribute	Items may be set in a real-world or mathematical context.
Response Attributes	<p>Items may require the student to give statements and/or justifications to complete formal and informal proofs.</p> <p>Items may require the student to justify a conclusion from a construction.</p>
Calculator	Neutral

Sample Item	Item Type																										
Hot Text – Drag and Drop																											
<p>A figure is shown, where \overline{DE} is parallel to \overline{BC}.</p> <div style="text-align: center; margin: 20px 0;">  </div> <p>Given: $\overline{DE} \parallel \overline{BC}$ Prove: $\angle ABC + \angle BCA + \angle CAB = 180^\circ$</p> <p>Drag statements from the statements column and reasons from the reasons column to their correct location to complete the proof.</p> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <table border="1" style="width: 48%; border-collapse: collapse;"> <thead> <tr> <th style="padding: 5px;">Statement</th> <th style="padding: 5px;">Reason</th> </tr> </thead> <tbody> <tr> <td>1. $\overline{DE} \parallel \overline{BC}$</td> <td>1. Given</td> </tr> <tr> <td>2.</td> <td>2.</td> </tr> <tr> <td>3.</td> <td>3.</td> </tr> <tr> <td>4. $\angle DAE = 180^\circ$</td> <td>4.</td> </tr> <tr> <td>5.</td> <td>5. Angle addition</td> </tr> <tr> <td>6.</td> <td>6.</td> </tr> <tr> <td>7. $\angle ABC + \angle BCA + \angle CAB = 180^\circ$</td> <td>7. Substitution</td> </tr> </tbody> </table> <table border="1" style="width: 48%; border-collapse: collapse;"> <thead> <tr> <th style="padding: 5px;">Statements</th> <th style="padding: 5px;">Reasons</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">$\angle DAB + \angle CAB + \angle EAC = \angle DAE$</td> <td style="padding: 5px;">Supplementary angles</td> </tr> <tr> <td style="padding: 5px;">$\angle DAB \cong \angle ABC$</td> <td style="padding: 5px;">Substitution</td> </tr> <tr> <td style="padding: 5px;">$\angle EAC = \angle ACB$</td> <td style="padding: 5px;">If two parallel lines are cut by a transversal, then the alternate interior angles are congruent.</td> </tr> <tr> <td style="padding: 5px;">$\angle DAB + \angle CAB + \angle EAC = 180^\circ$</td> <td style="padding: 5px;">If two parallel lines are cut by a transversal, the alternate interior angles are congruent.</td> </tr> </tbody> </table> </div>		Statement	Reason	1. $\overline{DE} \parallel \overline{BC}$	1. Given	2.	2.	3.	3.	4. $\angle DAE = 180^\circ$	4.	5.	5. Angle addition	6.	6.	7. $\angle ABC + \angle BCA + \angle CAB = 180^\circ$	7. Substitution	Statements	Reasons	$\angle DAB + \angle CAB + \angle EAC = \angle DAE$	Supplementary angles	$\angle DAB \cong \angle ABC$	Substitution	$\angle EAC = \angle ACB$	If two parallel lines are cut by a transversal, then the alternate interior angles are congruent.	$\angle DAB + \angle CAB + \angle EAC = 180^\circ$	If two parallel lines are cut by a transversal, the alternate interior angles are congruent.
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