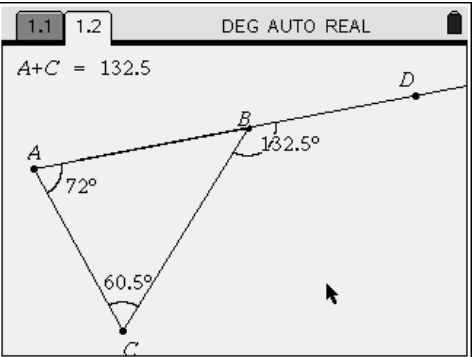


Teacher Notes

G.G.32 Investigate, justify, and apply theorems about geometric inequalities, using the exterior angle theorem

Lesson Launcher Objectives:

- 1) Identify an exterior angle of a triangle.
- 2) Identify remote interior and adjacent interior angles.
- 3) Discover that the measure of an exterior angle is equal to the sum of the remote interior angles

<p>The student will open the .tns document EXTTRI</p> 	<p>As the student selects, grabs and drags the vertices of triangle ABC they will be able to draw a conclusion from their exploration.</p>
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- 1) Is $\angle DBC$ in the interior or exterior of $\triangle ABC$? exterior
- 2) Is $\angle BAC$ in the interior or exterior of $\triangle ABC$? interior
- 3) Is $\angle BCA$ in the interior or exterior of $\triangle ABC$? interior
- 4) After exploring many triangles by dragging different points was there a relationship between the measures of $\angle BCA$, $\angle BAC$ and $\angle DBC$? The sum of angle BCA and angle BAC was equal to angle DBC
- 5) If you found a relationship write a statement that describes this relationship.
Answers will vary ...
- 6) $\angle BAC$ and $\angle BCA$ are referred to as remote interior angles with respect to $\angle DBC$. What is the name the adjacent interior angle? Angle ABC
- 7) What is the sum of $\angle DBC$ and its adjacent interior angle? 180

8) Given the symbols, $<$, $>$, $=$ place the correct symbol in each of the following:

A) $\angle DBC > \angle BCA$

B) $\angle DBC > \angle BAC$

Remember you can investigate many different situations by dragging a point.

9) Using your answers to question 8 write a statement about an exterior angle of a triangle and either remote interior angle.

An exterior angle is greater than either remote interior angle

10) Given the symbols, $<$, $>$, $=$ place the correct symbol in each of the following:

A) $\angle DBC + \angle CBA = 180^\circ$

B) $\angle BCA + \angle BAC = \angle DBC$

C) $\angle BCA + \angle BAC + \angle CBA = 180^\circ$