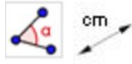


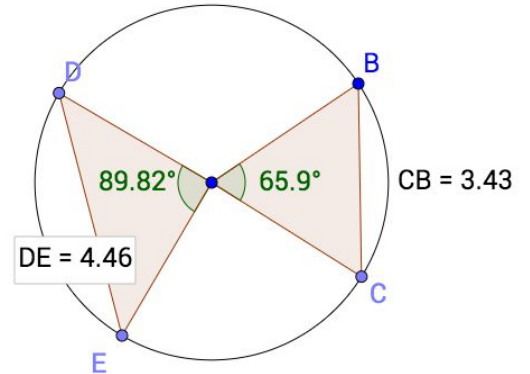
Construction 09: Triangle Inequalities & Similarities

Objective: Demonstrate the Hinge Theorem by isosceles triangles.

Instructions:


The Hinge Theorem: Part 1

- Construct two isosceles triangles using the center of a circle and two points on its circumference.
- 
 Measure the central angle and sides opposite them.
- Compare the lengths of the sides and create a conjecture between the lengths of the side



Similar Triangles by Parallel Sides: Part 2

- Construct a triangle with a line parallel to one of the sides.

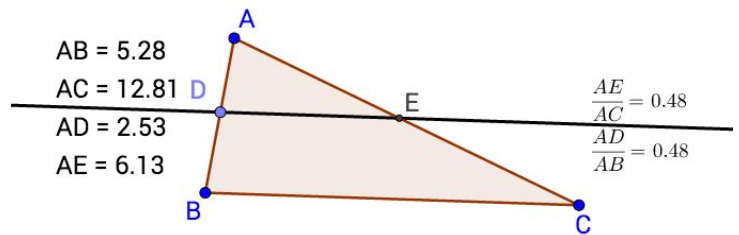
- 
 Measure AB , AC , AD and AE .
- Create a variable for the fractions $\frac{AE}{AC}$ and $\frac{AD}{AB}$

by entering
 $ratio1 = \frac{distanceAE}{distanceAC}$ and
 $ratio2 = \frac{distanceAD}{distanceAB}$

- Print both values to the screen as shown.
- Calculate using the input bar the following ratio:

$$\frac{AE}{EC} = \frac{AD}{DB} =$$

$$\frac{EC}{AC} = \frac{DB}{AB} =$$



Text

B / Serif LaTeX formula

AB =

AC =

AD =

Advanced

Preview aβy LaTeX formula

c	d
distanceAB	distanceAC
distanceAD	distanceAE
poly1	ratio
ratio2	

Text

B / Serif LaTeX formula

$\frac{AE}{AC} = ratio1$ \\

$\frac{AD}{AB} = ratio2$

Advanced

Preview aβy LaTeX formula

c	d
distanceAB	distanceAC
distanceAD	distanceAE
poly1	ratio1
ratio2	text1

OK Cancel

OK Cancel

AA Proof of Similar Triangles

Any two triangles that have two congruent angles always have proportional sides. Prove that the two triangles $\triangle ABC$ and $\triangle ADE$ are similar by showing that they have two congruent corresponding angles.

Construction 09: Triangle Inequalities & Similarities

Diagram	<p>Diagram includes two triangles with two congruent sides and unequal angles.</p> <p>Diagram has accurate measurement of the sides and their parts, including live and accurate ratios. Line is parallel to the base.</p>	<p>Diagram includes two triangles with two almost congruent sides and unequal angles.</p> <p>Diagram has almost accurate measurement of the sides and their parts, including live and accurate ratios. Line is parallel to the base.</p>	<p>Diagram includes two triangles with two somewhat congruent sides and unequal angles.</p> <p>Diagram has almost accurate measurement of the sides and their parts, including fixed and/or approximate ratios. Line is sometime parallel to the base.</p>	<p>Diagram includes two triangles with two noncongruent sides and unequal angles.</p> <p>Diagram has no accurate measurement of the sides and their parts, including live and accurate ratios. Line is parallel to the base.</p>
Use of Technology	<p>Students used Geogebra or ruler and compass to draw precise and clear lines, arcs and angles.</p> <p>Construction is completed with an efficient and elegant method using a minimum number of steps.</p>	<p>Students used Geogebra or ruler and compass to draw accurate and clear lines, arcs and angles.</p> <p>Construction is completed with an efficient and effective method using a modicum number of steps.</p>	<p>Students used Geogebra or ruler and compass to draw approximate lines, arcs and angles.</p> <p>Construction is completed with an somewhat effective method.</p>	<p>Students freehand draws unclear lines, arcs and angles.</p> <p>Construction is completed with an no discernable method.</p>
Description/Justification	<p>Objective is written at top of the page.</p> <p>Descriptions refer to labeled geometric figures.</p> <p>Complete Construction Protocol is given or complete description of the method of construction.</p> <p>Proof of AA Similarity Theorem is clear, complete and concises.</p>	<p>Objective is written at top of the page.</p> <p>Descriptions refer to labeled geometric figures.</p> <p>Mostly complete Construction Protocol is given or mostly complete description of the method of construction.</p> <p>Proof of AA Similarity Theorem is clear, and complete..</p>	<p>Objective is written at top of the page.</p> <p>Descriptions refer to labeled geometric figures.</p> <p>Somewhat complete Construction Protocol is given or complete description of the method of construction.</p> <p>Proof of AA Similarity Theorem is unclear or incomplete.</p>	<p>Objective is not written at top of the page.</p> <p>Descriptions do not refer to labeled geometric figures.</p> <p>No Construction Protocol is given or description of the method of construction.</p> <p>Proof of AA Similarity Theorem is unclear or incomplete or missing</p>
Technicalities	<p>Construction is titled.</p> <p>All key figures are labeled.</p> <p>Constructions are completed in pencil or by Geogebra</p>	<p>Construction is titled.</p> <p>Most key points are labeled.</p> <p>Constructions are completed in pencil or by Geogebra</p>	<p>Construction is not titled.</p> <p>Some key points are labeled.</p> <p>Constructions are completed in pencil or by Geogebra</p>	<p>Points are not labeled.</p> <p>Construction is untitled.</p> <p>Construction completed in pen or using an non-exact drawing program.</p>