10th Grade Geometry - Unit 8: Transformational Geometry

Bronx Early College Academy

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4 March 2019

Laptops - Geogebra class codes

8.1 Geogegra - Transformations project Tuesday 6 March

8.2 Dilation and similar triangles. Wednesday 7 March

8.3 Dilation and similar triangles. Thursday 8 March

8.4 Symmetry, "onto" transformations. Monday 11 March

8.5 Geogegra - Reflected+dilated $\triangle$ similarity Tues 12 March

8.5 Geogegra construction

8.5 Geogegra - Secant segment length relationships

8.7 SAS Similarity: secants. Wednesday 13 March

8.8 Rotational symmetry. Thursday 14 March

8.9 Similarity practice Friday 15 March

8.10 Project conventions/requirements Monday 18 March

8.11 Geogegra - Common $\triangle$ dilation situations Tuesday 19 March

8.12 Review for unit test Wednesday 20 March

8.13 Unit test Thursday 21 March

GQ: How do we model with digital tools?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 7.1 Tuesday 18 January

GeoGebra Geometry App
Enter N7BHK for 10.1 or P9PNZ for 10.2
Set up account using your real name.
Beginner Tutorials with Lesson Ideas
Author: Tim Brzezinski

Homework: Complete Geogebra

GQ: How do we use technology to explore geometric relationships?

CCSS: MP5 Use appropriate tools strategically: dynamic geometry software 8.1 Tuesday 6 March

Lesson: Geogebra project showing various transformations

1. Apply transformations to polygons (show at least two)
2. Use Geogebra's formating tools
3. Label with the transformation's specifics (e.g. center, factor)
4. Rubric: correct, aesthetics, MLA & email standards
5. Export a .png to email me. (husonbeca@gmail.com)
6. Filename: Last-Title.png, email subject line message

Parent conferences this Thursday evening, Friday afternoon

Homework: Test corrections (due tomorrow)

GQ: How do we transform objects on the coordinate plane?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 8.2 Wednesday 7 March

Do Now Plotting transformations review review

1. Handout

Lesson: Translation, reflection, rotation, dilation, composition, properties

Homework: Practice problems handout

GQ: How do we transform objects on the coordinate plane?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 8.3 Thursday 8 March

Do Now Analytic geometry review

1. Point-slope form of linear equations
2. Applications of slope, graphing linear equations
3. The equation of a circle, deriving center and radius

Lesson: Midlines, medians, the centroid. Measuring with Geogebra, submissions standards

Homework: Practice problems handout

GQ: How do we say that objects are mapped "onto" themselves?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 8.4 Monday 11 March

Do Now Analytic geometry practice

1. Point-slope form of linear equations
2. Applications of slope, graphing linear equations
3. The equation of a circle, deriving center and radius

Lesson: SSS Similarity;
Symmetry in terms of tranformations *onto* oneself

Homework: Practice problems handout

GQ: How do we use technology to explore geometry?

CCSS: MP5 Use appropriate tools strategically: dynamic geometry software 8.5 Tuesday 12 March

Lesson: Combining Geogebra and Microsoft Word

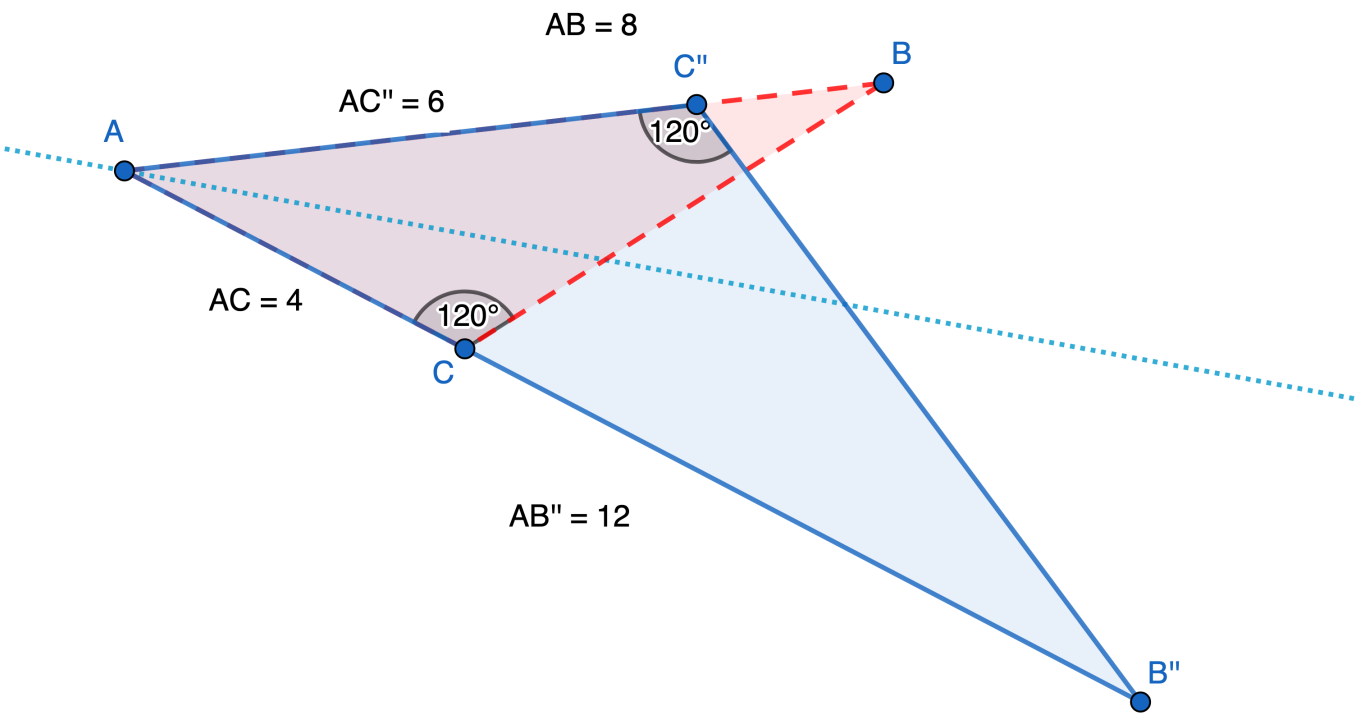
1. Reflect $\triangle ABC$ across the bisector of $\angle A$, yielding $\triangle A'B'C'$
2. Dilate $\triangle A'B'C' \to \triangle A''B''C''$ ($\triangle A'B'C'$ is then hidden)
3. Spicy: measure corresponding sides and/or angles
4. Export a .png file. Insert it in Word, adding heading & title.
5. Spicy: add text and formulas using Microsoft's formula bar
6. Email me: Last-Title.pdf, with subject line & message
7. Rubric: correct, aesthetics, MLA & email standards

π Day, Friday afternoon

Homework: Complete project (due by 10:00 pm)

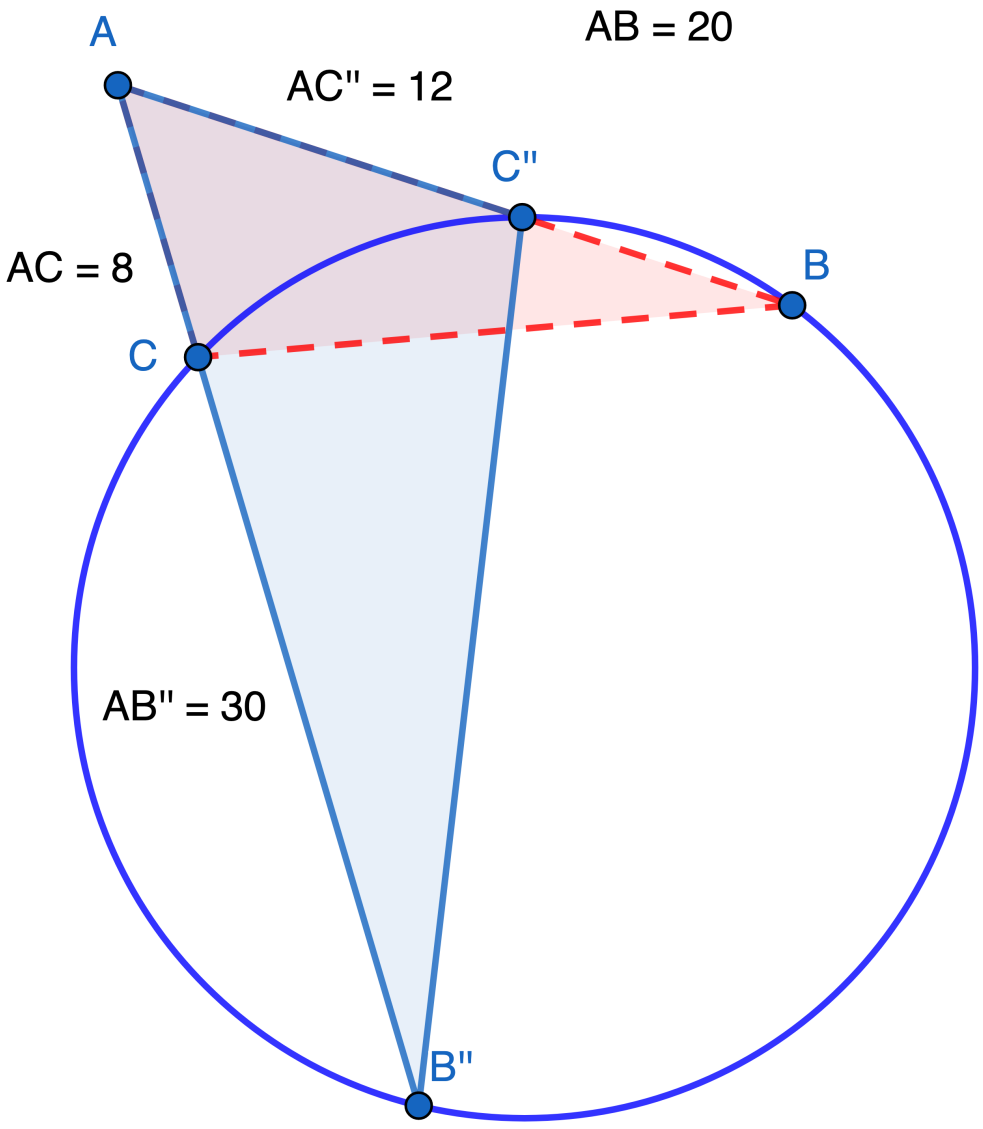
The red triangle has been reflected across its angle bisector and dilated from its own vertex

Hide the intermediate triangle so only the preimage and final image are shown.



The Geogebra image file should be inserted into Microsoft Word
Spicy: angle measures and segment lengths

Two circle secants form two similar (reflected) triangles



GQ: How do we use the scale factor to calculate segment lengths?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 8.7 Wednesday 13 March

Do Now Similar triangle handout

1. Naming corresponding relationships
2. Determining equal ratios (to scale factor)
3. Applying similarity relationships in situations

Lesson: SAS Similarity;
Rotational symmetry

Homework: Practice problems handout

GQ: How do we calculate angles of rotation mapping "onto" itself?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 8.8 Thursday 14 March

Do Now Similar triangle handout

1. Naming corresponding relationships
2. Determining equal ratios (to scale factor)
3. Applying similarity relationships in situations

Lesson: SAS Similarity;
Rotational symmetry

Homework: Practice problems handout

GQ: How do we use the scale factor to calculate segment lengths?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 8.9 Friday 15 March

Do Now Similar triangle handout

1. Naming corresponding relationships
2. Determining equal ratios (to scale factor)
3. Applying similarity relationships in situations

Lesson: Common situations with similar triangles
Assessment: pop quiz

Homework: Practice problems handout

GQ: How do we use the scale factor to calculate segment lengths?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 8.10 Monday 18 March

Do Now Similar triangle handout

1. Naming corresponding relationships
2. Determining equal ratios (to scale factor)
3. Applying similarity relationships in situations

Lesson: Common situations with similar triangles, chords
Assessment: Project requirements

Homework: Practice problems handout

GQ: How do we use technology to explore geometry?

CCSS: MP5 Use appropriate tools strategically: dynamic geometry software 8.11 Tuesday 19 March

Project: Common Triangle Dilation Situations

1. Write a paper diagramming common similar triangle examples
2. Spicy: Use color & line variations for clarity (not decoration)
3. Construct in Geogebra, compile in Word: add heading & title, text, and formulas using Microsoft's equation editor
4. Email me: Last-Title.pdf, with subject line & message
5. Rubric: correct, aesthetics, MLA & email standards

Unit test Thursday

Homework: Complete project (due by 10:00 pm), problem set

GQ: How do we use the scale factor to calculate segment lengths?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 8.12 Wednesday 20 March

Do Now Similar triangle handout

1. Naming corresponding relationships
2. Determining equal ratios (to scale factor)
3. Applying similarity relationships in situations

Lesson: Common situations with similar triangles
Assessment: Unit test tomorrow

Homework: Study for test

GQ: How do we use the scale factor to calculate segment lengths?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 8.13 Thursday 21 March

Assessment: Unit test

Homework: Practice problems handout