Mathematics Class Slides

Bronx Early College Academy

Chris Huson

26 November 2018

BECA / Dr. Huson / Geometry Unit 4

4.1 Project: Triangle congruence project, Monday 26 November

4.1 Drui: Triangle congruence. Monday 26 November

4.2 Drui: Deltamath. Tuesday 27 November

4.3 Drui: Triangle proofs. Wednesday 28 November

4.4 Drui: Pretest review. Thursday 29 November

4.5 Drui: Exam. Friday 30 November

4.6 Drui: Translations Monday December 3

4.7 Deltamath Translations Tuesday December 4

4.8 Drui: Translations Wednesday December 5

4.9 Drui: Reflections Thursday December 6

4.10 Drui: Rotation Friday December 7

4.11 Drui: Rounding, volume formulas Monday December 10

4.11 Rigid motion: Transformations that maintain length and angle measures Monday December 10

4.11 Symmetry: objects invariant under a transformation Monday December 10

4.12 Deltamath Translations Tuesday December 11

4.13 Drui: Radians, symmetry; Test review Wednesday December 12

4.14 Drui: Dilation Thursday December 13

Construction project: Triangle congruence

CCSS: HSG.CO.C.9 Prove geometric theorems 4.1

Four pages of $\triangle$ duplication constructions for binder

1. Side-side-side (SSS)
2. Side-angle-side (SAS)
3. Angle-side-angle (ASA)
4. Side-side-angle (SSA), false, "ambiguous case"

Grading criteria (20 points)

1. Complete and correct construction
2. State postulate or theorem. (written steps not necessary)
3. MLA header, center title & last name on right
4. Precise, elegant, mathematical aesthetic

Due Friday November 30

GQ: How do we construct congruent triangles?

CCSS: HSG.CO.C.9 Prove geometric theorems 4.1 Monday 26 November

Do Now:

1. Trig review problems handout
2. $+, \triangle$ What is working? What would you change?

Seating chart
2nd trimester norms and expectations
$\triangle$ congruence construction project, SSS
Homework packet review, trig problems

Homework: Distance, midpoint, and slope review, handout
Parent-teacher conferences Thursday & Friday

GQ: How do we use trigonometric ratios?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 4.2 Tuesday 27 November

Do Now: SAS $\triangle$ congruence

1. Duplicate a side, duplicate an angle, duplicate a side.
2. Angle must be the *included* angle, between the two sides
3. $\triangle ABC \cong \triangle A'B'C'$ iff
   $\overline{AB} \cong \overline{A'B'}, \angle A \cong \angle A',$ and $\overline{AC} \cong \overline{A'C'}$

Geogegra intro (?)
Deltamath assessment: distance, midpoint, and slope
Deltamath homework: trig ratios, triangle relationships

Homework: Complete deltamath (10pm deadline)
Parent-teacher conferences Thursday & Friday

GQ: How do we prove triangles congruent?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 4.3 Wednesday 28 November

Do Now: Theorems review handout
Triangle sum, transversal, vertical

Angle-side-angle (ASA) $\triangle$ congruence

1. Duplicate an angle, duplicate a side, duplicate an angle
2. $\triangle ABC \cong \triangle A'B'C'$ iff
   $\angle A \cong \angle A', \overline{AB} \cong \overline{A'B'},$ and $\angle B \cong \angle B'$

Lesson:
Triangle congruence proofs
Assessment: distance, midpoint, and slope

Homework: Pretest packet. Test Friday

GQ: How do we prove triangles congruent?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 4.4 Thursday 29 November

Do Now: Triangle congruence practice handout

SSA $\triangle$ congruence (or ASS, "jack ass theorem")

1. Duplicate an angle, duplicate a side, duplicate an side
2. Given $\triangle ABC$ if $\angle A \cong \angle A', \overline{AB} \cong \overline{A'B'}$, and $\overline{BC} \cong \overline{B'C'}$ then two possible $\triangle$s may result.

Lesson:
Review problems for take home test

Homework: Complete $\triangle \cong$ project due tomorrow

GQ: How do we prove triangles congruent?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 4.5 Friday 30 November

Review for unit exam

Triangle congruence project due

Homework: Take home test

GQ: How do we translate the plane?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 4.6 Monday December 3

Transformations, translations
Hexagon (& square) construction project due Friday

Homework: Hexagon construction

GQ: How do we translate the plane?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 4.7 Tuesday December 4

HL Triangle congruence

Deltamath classwork: Transformations, translations, hexagon construction

Homework: Deltamath homework package

GQ: How do we translate the plane?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 4.8 Wednesday December 5

Triangle congruence handout. Problem #1
Spicy: keep going!

Hint: use theorems from transversals and parallel lines

Triangle congruence proofs
Square construction
Rigid motion, pre-image→image, compositions. pp. 545-550

Homework: Congruence handout

GQ: How do we reflect objects on the plane?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 4.9 Thursday December 6

Triangle congruence, translation handout.

Constructing the line of reflection given pre-image→image
Reflection across a line, orientation. pp. 554-557

Homework: Congruence handout

GQ: How do we rotate objects on the plane?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 4.10 Friday December 7

Triangle congruence, transformation handout.

Center and angle of rotation mapping pre-image→image
pp. 561-567

Homework: Congruence, transformation handout

GQ: What are the arithmetic skills in geometry?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 4.11 Monday December 10

Do Now: Answer on a separate sheet of paper to turn in.

Triangle $A'B'C'$ is the image of triangle ABC after a translation of 2 units to the right and 3 units up. Is triangle ABC congruent to triangle $A'B'C'$? Explain why.

Lesson: Rounding, volume calculations using the formula sheet

Test Thursday

Homework: Pretest handout, due Wednesday

Rigid motion

When does a transformations maintain length and angle measures?

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$\triangle ABC$ must be congruent to $\triangle A'B'C'$ because a translation is a basic rigid motion which preserves angle measure and side length. Therefore the 2 $\triangle$'s have all corresponding parts congruent.

Yes, the $\triangle$'s are $\cong$ because a translation is a rigid motion so it preserves side lengths. ~~and angle measures~~. Because corr. sides have the same lengths, the $\triangle$'s are $\cong$ by SSS.

Symmetry

When is an object unchanged by a transformation?

If when an object $A \rightarrow A'$ and $A = A'$ then we say it is symmetric.

Reflection: *axis of symmetry*

Rotation: *center and angle of rotation*

Example: Regular polygons are symmetrical

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Which transformation would *not* carry a square onto itself?

(1) a reflection over one of its diagonals

(2) a 90° rotation clockwise about its center

(3) a 180° rotation about one of its vertices

(4) a reflection over the perpendicular bisector of one side

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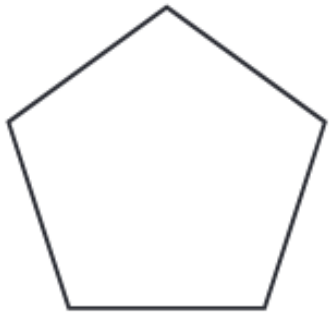
The regular polygon below is rotated about its center.



GQ: How do we translate the plane?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 4.12 Tuesday December 11

Area formulas: triangle, semi-circle

Deltamath classwork: Transformations, volume calculations

Test Thursday

Homework: Deltamath homework package

GQ: How do we convert angle measure units?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 4.13 Wednesday December 12

Triangle congruence, transformation handout.

Lesson: radians to degrees formulas, symmetry
Review for test

Intensives daily homework protocol

Homework: Study for Test Tomorrow

GQ: How do we translate objects on the plane?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 4.14 Thursday December 13

Test

Homework: Review packet, due Monday Room 450

(Intensives daily homework)

GQ: How do we translate the plane?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 4.15 Friday December 14

Intensives daily homework protocol

Deltamath classwork: Holiday review

Homework: Deltamath homework package

GQ: How do we dilate objects on the plane?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 4.11 Monday December 10

Triangle congruence, transformation handout.

Center of dilation and scale factor mapping pre-image→image
pp. 587-591

Homework: