Mathematics Class Slides

Bronx Early College Academy

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2 January 2020

7.1 Dilation calculations of triangle, Thursday 2 January

7.2 Dilation calculations of triangle, Friday 3 January

7.3 Dilation calculations of triangle, Monday 6 January

7.4 Laptop: Geogebra triangle reflection+dilation, Tuesday 7 January

7.4 Laptop: Composition project assessment criteria, Tuesday 7 January

7.5 Transformational symmetries, Wednesday 8 January

7.6 Transformational symmetries, Thursday 9 January

7.7 Unit exam: Similarity, Friday 10 January

7.8 Constructions review, Monday 13 January

7.9 Constructions review, Tuesday 14 January

GQ: How do we calculate the lengths of △s under dilation?

CCSS: HSG.SRT.B5 Use similarity criteria to solve problems 7.1 Thursday 2 January

Do Now: Exam review

- Dilate a given triangle with scale factor
- Applying dilations on the coordinate plane
- The parameter m in a function $f(x) = mx + b$
- Isosceles triangle review
- Graph peer grading

Lesson: Dilation and the properties of similar figures, notation

Homework: Complete problem set (Portfolio binder extra credit Monday)

GQ: How do we use equations to solve geometry problems?

CCSS: HSG.SRT.B5 Use similarity criteria to solve problems 7.2 Friday 3 January

Do Now: Applying the tangent function

1. Calculate the tangent of an angle using a calculator
2. Calculate the tangent of an angle given a slope, or $\triangle$ side lengths
3. Solving for the a triangle's sides given a vertex angle measure
4. Inverse function on the calculator $tan^{-1}(x)$

Lesson: Review of problems using coordinate geometry
Homework: Complete problem set (Portfolio binder extra credit Monday)

GQ: How do we use equations to solve geometry problems?

CCSS: HSG.SRT.B5 Use similarity criteria to solve problems 7.3 Monday 6 January

Do Now: Applying the tangent function

1. Calculate the tangent of an angle using a calculator
2. Calculate the tangent of an angle given a slope, or $\triangle$ side lengths
3. Solving for the a triangle's sides given a vertex angle measure
4. Inverse function on the calculator $tan^{-1}(x)$

Test corrections due. Portfolio binder review for extra credit
Lesson: Angle-angle similarity theorem, the reflexive property
Homework: Complete problem set

GQ: How do we communicate examples of compositions?

CCSS: MP5 Use appropriate tools strategically 7.4 Tuesday 7 January

Project: Reflection and dilation composition of a $\triangle$

1. Use Geogebra & MS Word to write a 1+ page paper
2. Perform the following operations:
   - 2.1 Bisect the angle of one vertex of a triangle, $\triangle ABC$
   - 2.2 Reflect $\triangle ABC$ across the bisector, creating image $\triangle A'B'C'$
   - 2.3 Dilate the image, $\triangle A'B'C' \rightarrow A''B''C''$
3. In the text, describe your steps, the mappings and congruences.
4. Use proper notation and the equation editor. Follow MLA.
5. Email a pdf file, subject line: Dilation composition assignment

Homework: Complete exploration paper (10:00 deadline)

GQ: How do we assess project papers?

CCSS: MP5 Use appropriate tools strategically 7.4 Tuesday 7 January

Project Criteria: Reflection and dilation composition of a $\triangle$

1. Perform the complete construction in Geogebra. (30 points)
2. Describe the steps, mappings, & congruences. (20 points)
3. Use proper notation, the equation editor, color. (15 points)
4. Follow MLA. (20 points)
5. Submit a pdf file (10 points)
6. Email subject line: Dilation composition assignment (5 points)

GQ: How do we transform a figure onto itself?

CCSS: HSG.SRT.B5 Use similarity criteria to solve problems 7.5 Wednesday 8 January

Do Now: Dilation situations

1. Ratio calculations
2. Corresponding angles and polygon sides
3. Transformation composition

Lesson: Symmetry as transformations "onto itself"

Homework: Transformations problem set (Test Friday)

GQ: How do we transform a figure onto itself?

CCSS: HSG.SRT.B5 Use similarity criteria to solve problems 7.6 Thursday 9 January

Do Now: Dilation situations

1. Ratio calculations
2. Corresponding angles and polygon sides
3. Transformation composition

Lesson: Symmetry as transformations "onto itself"

Homework: Transformations problem set (Test tomorrow)

GQ: How do we apply transformations to solve problems?

CCSS: HSG.SRT.B5 Use similarity criteria to solve problems 7.7 Friday 10 January

Similarity Unit Exam

1. Similarity ratio calculations
2. Applications of slope and linear equations
3. Transformations
4. Symmetry

GQ: How do we transform a figure onto itself?

CCSS: HSG.SRT.B5 Use similarity criteria to solve problems 7.8 Monday 13 January

Do Now: Exam followup

1. Reflection situations
2. Using algebraic language to justify answers
3. Analytic proof using the distance formula

Lesson: Constructions review

Right triangle similarity situations, cross multiplying to show ratios as equal products

Homework: Right triangle situations problem set
Test corrections due Wednesday

GQ: How do we perform simple classical constructions?

CCSS: HSG.SRT.B5 Use similarity criteria to solve problems 7.9 Tuesday 14 January

Do Now: Analytic geometry proofs

Lesson: Constructions review

1. Equilateral triangle
2. Segment and angle bisectors
3. Duplicate a segment and an angle
4. Perpendicular to a line through a point
5. Special: hexagon, square, diameter, line of reflection

Homework: Constructions

Report card: final day tomorrow, test corrections due