

# Mathematics Class Slides

## Bronx Early College Academy

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4 November 2019

5.1 Transformations intro, dilation constructions, 4 November

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5.2 Dilation calculations of triangle, 6 November

5.2 Project rubric - Polygon angle sum table in Word

5.3 Unit conversions in real world situations, 7 November

## GQ: How do we construct a triangle with double the side lengths?

CCSS: HSG.CO.A.1 Know precise geometric definitions

5.1 Monday 4 Nov

### Do Now: Exam early finishers problems

1. Modeling geometric situations with an algebraic equation
2. Complex angle combinations
3. Constructions with a purpose

Review exam results; Test corrections due Friday

Dilation constructions

Lesson: Translation, dilation, reflection

Homework: Problem set 5-1 Khan Academy transformations (due Tuesday 10:00PM)

## GQ: How do we notate transformations?

CCSS: HSG.CO.A.1 Know precise geometric definitions

5.1 Monday 4 Nov

### Terminology and notation for transformations

1. A preimage is mapped to the image,  $A \rightarrow A'$
2. Translation or slide:  $T_{+1,-3}$  or  $(x, y) \rightarrow (x + 1, y - 3)$   
(or as a vector or arrow)
3. Rotation around a point by an angle measure,  $R_{30^\circ, (0,0)}$
4. Reflection over a line,  $r_{x-axis}$
5. Dilation by a factor  $k$  centered at a point,  $D_{\times 2, (0,0)}$

Rigid motions or isometries are transformations that maintain lengths and angles (translation, reflection, rotation, but not dilation)

## GQ: How do we calculate the lengths of $\triangle$ s under dilation?

CCSS: HSG.CO.A.1 Know precise geometric definitions

5.2 Wednesday 6 Nov

### Do Now: Dilation of a triangle

- ▶ Dilate a given triangle with scale factor  $k = 3$
- ▶ Calculate the resulting lengths of the image
- ▶ Solve for the scale factor and apply it

Portfolio binder checklist, due Wednesday (parent conferences)

Lesson: Triangle in standard position, side length notation

Modeling with  $A'B' = k \times AB$

Homework: 5.2 Khan Academy dilation practice

## GQ: How do we communicate patterns polygons follow?

CCSS: HSG.CO.A.1 Know precise geometric definitions

4.8 Tuesday 29 Oct

Project rubric: Polygon paper, 29 October

Use Geogebra & MS Word to write a 1-2 page paper

1. Include a polygon (20)
2. Dotted diagonals (5)  
Spicy: add color, marked angle measures (+5, +5)
3. In MS Word table (20)
4. Use the equation editor (20)  
Spicy: Caption to the table (+5)
5. Follow MLA format. (20)  
If not a single page, manage page break (-5)
6. Email pdf and MS Word .docx files  
Subject line: Polygon exploration (5)

## GQ: How do we apply unit conversions in real world situations?

CCSS: HSG.CO.A.1 Know precise geometric definitions

5.2 Wednesday 6 Nov

### Do Now Handout: Applied situations

- ▶ Floorplan square footage and wall surface area
- ▶ Conversions to desired requirements (cost, time, supplies, etc.)
- ▶ Volume

Portfolio binder checklist, due next Wednesday (parent conferences) Lesson: Rates of coverage, cost, weight, work

Unit conversions:  $\times \frac{\text{desired unit}}{\text{given unit}}$

Homework: 5.3 Deltamath Prequiz (online Do Now quiz tomorrow)