

# Mathematics Class Slides

Bronx Early College Academy

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13 November 2018

Project criteria

Notetaking criteria

2.13 Project: Triangle centers project, Wednesday 31 October

3.1 Drui: Deltamath. Tuesday 16 October

3.2 Drui: Isosceles. Wednesday 14 November

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3.3 Drui: Isosceles. Thursday 15 November

3.4 Drui: Isosceles. Friday 16 November

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3.5 Drui: Triangle external angle theorem. Monday 19 November

3.6 Drui: Deltamath. Tuesday 20 November

3.7 Drui: Trig. Wednesday 26 November

## GQ: How do we present mathematical work?

CCSS: HSG.CO.D.12 Congruence, Make geometric constructions

Complete binder - **project grade**

Exams & corrections

Best examples of each basic construction:

Equilateral  $\triangle$ ,  $\cong$  segment &  $\angle$ s, bisected segment &  $\angle$ ,  $\perp$ s  
 $\triangle$  concurrencies, compound constructions

### Criteria for construction projects

1. Complete and correct construction
2. Steps written with proper notation
3. Layout: GQ title, date on left; first & last name on right
4. Precise, elegant, mathematical aesthetic

## GQ: How do we organize our mathematical notes?

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

### Criteria for notebook project grade (20 points)

1. Your name and "Geometry" on cover
2. Toward front: math.huson.com, husonbeca@gmail.com, 917-648-5632, Deltamath teacher ID: 546068
3. Labeled composition book out during class; GQ, date each day
4. Definitions, postulates, constructions, & theorems
5. Combination of symbols, diagrams, text (best: your own words)
6. Examples, but not practice problem sets

Grading policy: daily tracker, pop notebook checks

## GQ: How do we construct the centroid, circumcenter, incenter, and orthocenter?

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

2-13

### Construction project: Triangle centers

1. Circumcenter: perpendicular bisectors
2. Incenter: angle bisectors
3. Orthocenter: altitudes (perpendiculars through vertices)
4. Centroid: medians (midpoint to opposite vertices)

Was due Monday November 5th

## GQ: How do we use slope in geometry?

CCSS: HSG.CO.D.12 Congruence, Make geometric constructions 3-1 Tuesday Nov 13

### Today's class assignments, in order

1. Triangle center project (over due)
2. Write a binder checklist: exams, constructions, projects
3. Deltamath practice: slope, parallels, perpendiculars,  $\triangle$  sums

Notebook check

Test corrections due Friday

Homework: Complete deltamath (10pm deadline)

## GQ: How do we use isosceles triangles?

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

3-2 Wednesday Nov 14

Do Now: Sketch  $\triangle ABC$ ,  $A(-2, -1)$ ,  $B(2, -1)$ ,  $C(2, 2)$

1. Find the slope of  $\overleftrightarrow{AC}$
2. Find the lengths  $AB$ ,  $BC$ ,  $AC$
3. Given  $m\angle A = 37$ ,  $m\angle B = 90$ . Find  $m\angle C$

Theorems:

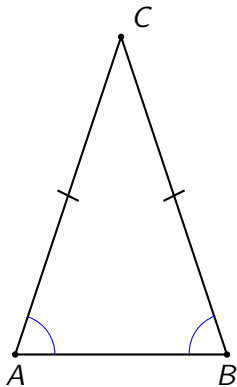
A triangle is isosceles *iff* it has two congruent base angles

Radii of a circle, and congruent circles, are congruent

Homework: Triangle and slope practice, handout

## The isosceles base angle theorem.

Given  $\triangle ABC$ .  $\overline{AC} \cong \overline{BC}$  iff  $\angle A \cong \angle B$ .



The two congruent angles are the *base* angles. The third angle is the *vertex* angle.



## GQ: How do we calculate the area of a parallelogram?

CCSS: HSG.GPE.B.7 Use coordinates to compute perimeters & areas of polygons 3-3

Thursday 15 November

Do Now:  $\triangle$  center construction handout

1. Altitude, orthocenter, spicy: hexagon

Lesson:

The area of a parallelogram equals base times height.  $A = b \times h$

Assessment:

Isosceles triangle and circle radii

Homework: Area and distance review, handout

## GQ: How do we calculate the area of a parallelogram?

CCSS: HSG.GPE.B.7 Use coordinates to compute perimeters & areas of polygons 3-4

Friday 16 November

Do Now: Given parallelogram *SNOW* with  $S(2, 1)$ ,  $N(7, 1)$ ,  $O(10, 5)$ ,  $W(5, 5)$ , handout

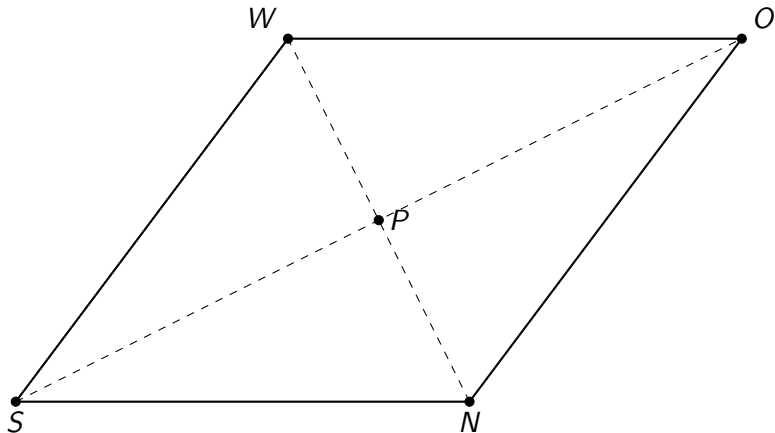
Lesson:

Applying distance, midpoint, slope , and angle congruence formulas to parallelograms

Homework: Linear functions review, handout

## Features of parallelograms (and rhombuses)

Parallelogram  $SNOW$  with  $S(2,1)$ ,  $N(7,1)$ ,  $O(10,5)$ ,  $W(5,5)$



## GQ: How do we write the equation of a line?

CCSS: HSG.GPE.B.7 Use coordinates to compute perimeters & areas of polygons 3-5

Monday 19 November

Do Now: Textbook triangle problems

Exercises #25-29 p. 209

Lesson:

Triangle external angle theorem

Slope-intercept form of the equation of a line

Exercises: Chapter Test questions p.211

Homework: Linear functions review, handout

## GQ: How do we use trigonometric ratios?

CCSS: HSG.CO.D.12 Congruence, geometric constructions 3-6 Tuesday 20 November

Write in your notebook: Trig ratios, "SOH-CAH-TOA"

1. sine, SOH:  $\sin x = \frac{\text{opposite}}{\text{hypotenuse}}$
2. cosine, CAH:  $\cos x = \frac{\text{adjacent}}{\text{hypotenuse}}$
3. tangent, TOA:  $\tan x = \frac{\text{opposite}}{\text{adjacent}}$

Classwork priorities

1. Triangle center project
2. Deltamath practice: trig, parallels, perpendiculars,  $\triangle$  sums

Homework: Complete deltamath (10pm deadline)

## GQ: How do we use trig ratios to solve problems?

CCSS: HSG.SRT.C.8 Use trig ratios to solve problems      3-7 Wednesday 19 November

Do Now: Trig problems, handout

Lesson:

Right triangle trigonometry examples

Homework: Review packet