Mathematics Class Slides

Bronx Early College Academy

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13 November 2018

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 $\triangle ABC$, $A(-2,-1), B(2,-1), C(2,2)$

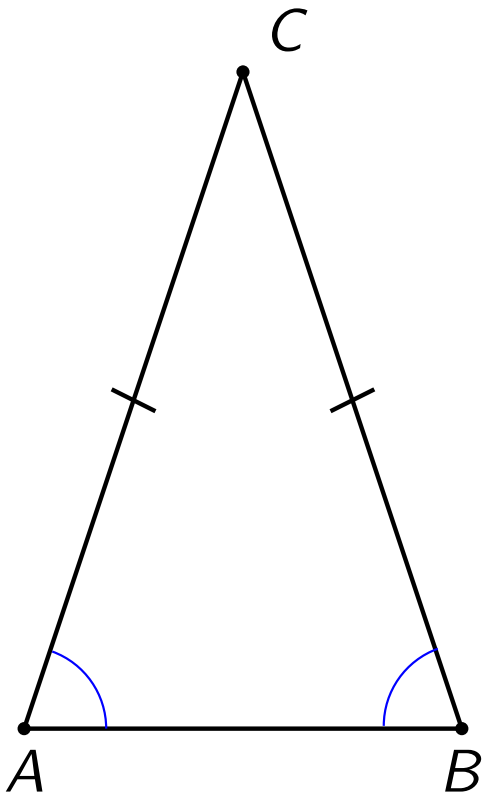
1. Find the slope of $\overleftrightarrow{AC}$
2. Find the lengths AB, BC, AC
3. Given $m\angle A = 37$, $m\angle B = 90$. Find $m\angle C$

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. $A = b \times h$

Aassessment:
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

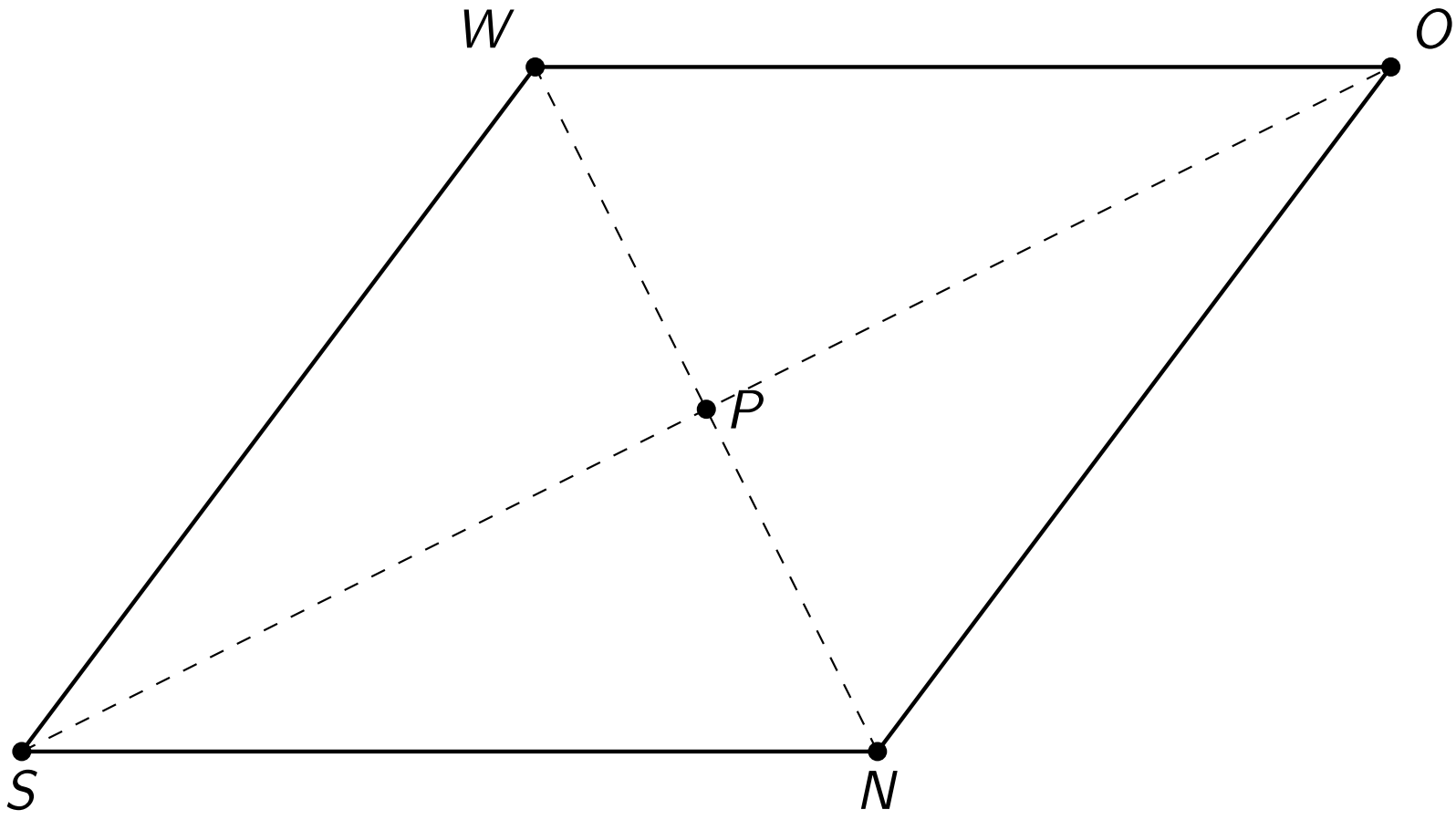
Do Now: Given parallelogram *SNOW* with $S(2,1), N(7,1), O(10,5), W(5,5)$, handout

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

Classwork priorities

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

Homework: Complete deltamath (10pm deadline)

GQ: How do we use slope in proofs?

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

Monday 19 November

Do Now: Slope & distance problems

1. Given $A(2,1), B(6,4)$. Find the length AB and the slope $m_{\overline{AB}}$

Lesson:
Right triangle example proof
Perpendicular bisector example
Triangle midline proof

Homework: Review packet