

# Mathematics Class Slides

Bronx Early College Academy

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25 November 2019

6.1 Intro to the coordinate plane and linear functions, 25 November

6.2 Laptop - Graphing functions on coordinate plane, 26 November

6.3 Coordinate geometry practice, 27 November

6.4 Assessment: distance formula, Monday 2 December

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6.5 Laptop or by hand - Radical spiral, 3 December

6.5 Re-Assessment: distance formula, Tuesday 3 December

6.6 Midpoint formula, Wednesday 4 December

6.7 Midpoint formula, distance quiz, Thursday 5 December

6.8 Tangent introduction, Euclid's Orchard, Friday 6 December

6.9 Regents proofs using analytic geometry, Monday 9 December

6.10 Laptop practice - Deltamath review, 10 December

6.11 Test review, Wednesday 11 December

6.12 Analytic geometry unit exam, Thursday 12 December

6.13 Geogebra writing project, Friday 13 December

## GQ: How do we plot lines on the coordinate plane?

CCSS: HSG.GPE Express geometric properties with equations

6.1 Monday 25 Nov

### Do Now: Plotting points and lines

1. Modeling geometric situations with an algebraic equation
2. Slope-intercept form of linear equations
3. Dilation of a line centered at the origin

Review exam results

Lesson: Perpendicular and parallel slopes

Homework: Test corrections due tomorrow

## GQ: How do we work on the coordinate plane?

CCSS: HSG.GPE Express geometric properties with equations

6.2 Tuesday 26 Nov

### Do Now: Deltamath practice

1. Graphing linear equations
2. Perpendicular and parallel slopes
3. Function and algebraic manipulations

10.1 meets in Room 414 first period tomorrow (advisory schedule)

Homework: Complete Deltamath homework section

## GQ: How do we plot lines on the coordinate plane?

CCSS: HSG.GPE Express geometric properties with equations 6.3 Wednesday 27 Nov

### Do Now: Plotting points and lines

1. Modeling geometric situations with an algebraic equation
2. Slope-intercept form of linear equations
3. Dilation of a line centered at the origin

Review exam results

Lesson: Perpendicular and parallel slopes

Homework: Test corrections due tomorrow

## GQ: How do we plot lines on the coordinate plane?

CCSS: HSG.GPE Express geometric properties with equations

6.4 Monday 2 Dec

Do Now: Plotting, measuring, and translating on the  $x$ - $y$  plane

1. Measure horizontal and vertical distances
2. Measure diagonal distances
3. Parabolas, quadratic functions, & function translation

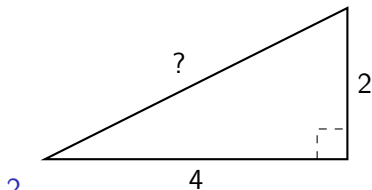
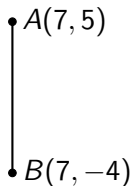
Lesson: the distance formula (Pythagorean theorem)

Review perpendicular and parallel slopes

Homework: Khan Academy distance practice

## Assessment: Distance formula (on looseleaf paper)

1. Given  $A(7, 5)$  and  $B(7, -4)$ , find  $AB$ .



2. What is the length of  $\overline{CD}$  if  $C(1, -2)$  and  $D(7, 6)$ ?

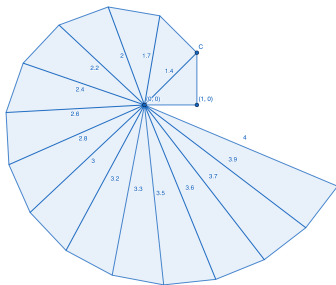
## GQ: How do we calculate distance given coordinates?

CCSS: HSG.GPE Express geometric properties with equations

6.5 Tuesday 3 Dec

Do Now Assessment

Project paper: Use paper & pencil or MS Word & Geogebra



1. Radical spiral
2. Briefly explain how the spiral is constructed in the text.

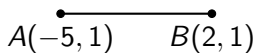
Lesson: Drawing perpendicular figures in Geogebra

Homework: Complete the project paper (due 10:00pm)

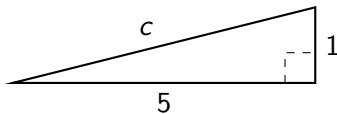


## Assessment: Distance formula (on looseleaf paper)

1. Find  $AB$ ,  $A(-5, 1)$  and  $B(2, 1)$ .



2. Find  $c$ .



3. What is the length of  $\overline{CD}$  if  $C(-1, 15)$  and  $D(4, 3)$ ?

$$\text{Use } d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

## GQ: How do we find the midpoint of a line segment?

CCSS: HSG.GPE Express geometric properties with equations 6.6 Wednesday 4 Dec

Do Now pre-quiz: Distance, slope, Pythagorean formula

1. Bisecting horizontal and vertical distances
2. Measure diagonal distances
3. Right triangle situations

Lesson: Midpoint formula (directed segment & averaging forms)

Review area and volume

Homework: Khan Academy distance practice

## GQ: How do we find the midpoint of a line segment?

CCSS: HSG.GPE Express geometric properties with equations

6.7 Thursday 5 Dec

Do Now Quiz: Distance, slope, Pythagorean formula

1. Bisecting horizontal and vertical distances
2. Measure diagonal distances
3. Right triangle situations

Lesson: the midpoint formula practice

Review rounding and decimal places

Homework: Handout midpoint practice

## GQ: How do we map angles to slope?

CCSS: HSG.GPE Express geometric properties with equations

6.8 Friday 6 Dec

### Do Now: Euclid's Orchard

1. Calculate the slope of triangles in the 1st quadrant
2. Measure their vertex angle measures in degrees
3. Make a table of the function mapping angle measure to slope

Lesson: Introduction to the tangent function

Homework: Trigonometry intro to tangent (exam Thursday)

## GQ: How do we prove properties of polygons on the plane?

CCSS: HSG.GPE Express geometric properties with equations

6.9 Monday 9 Dec

### 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: Proofs using slope, distance, and midpoint formulas

Homework review tangent; slope and the distance formula  
(based on assessment)

Homework: Pre-test (exam Thursday)

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

CCSS: HSG.GPE Express geometric properties with equations 6.10 Tuesday 10 December

Do Now Re-quiz (10.2): Slope & distance

Classwork: Deltamath practice

1. Graphing linear equations
2. Perpendicular and parallel slopes
3. Function and algebraic manipulations

Afterschool help Wednesday 2:20-3:30

Homework: Complete Deltamath homework section,  
(exam Thursday)

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

CCSS: HSG.GPE Express geometric properties with equations 6.11 Wednesday 11 Dec

### 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

Afterschool help studying for test, today 2:20-3:30

Homework: Pre-test (exam tomorrow); Intensives next week

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

CCSS: HSG.GPE Express geometric properties with equations 6.12 Thursday 12 Dec

### Unit exam: Analytic geometry

1. Distance, slope, Pythagorean formula
2. Bisecting horizontal and vertical distances
3. Measure diagonal distances
4. Right triangle situations
5. Spicy: ratio partition, proof, radicals

Lesson: the midpoint formula practice

Review rounding and decimal places

Homework: Handout tangent practice



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

CCSS: HSG.GPE Express geometric properties with equations

6.13 Friday 13 Dec

### Geogebra modeling project paper

1. Distance, slope, Pythagorean formula
2. Bisecting horizontal and vertical distances
3. Measure diagonal distances
4. Right triangle situations

Lesson: the midpoint formula practice

Homework: Handout tangent practice; Intensives next week