Mathematics Class Slides

Bronx Early College Academy

Chris Huson

28 January 2020

BECA / Dr. Huson / IB Math Unit 5 - Polynomial functions

5.1 Solving quadratic equations	Tuesday 28 January
5.2 Quadratic functions where $a \neq 1$	Wednesday 29 January
5.3 Completing the square	Friday 31 January
5.4 Quadratic formula	Monday 3 February
5.5 Quadratic formula	Tuesday 4 February
5.5 The discriminant	Tuesday 4 February
5.6 The discriminant	Wednesday 5 February
5.7 The discriminant	Thursday 6 February
5.8 The discriminant	Monday 10 February
5.9 Deltamath: polynomials, quadratics	Tuesday 11 February
5.10 Unit review	Wednesday 12 February
5.11 Unit exam	Thursday 13 February
6.2 Intro to calculus	Thursday 27 February

GQ: How do we factor and solve quadratic equations?

CCSS: HSF.IF.C8.A Factor quadratic functions to show zeros 5.1 Tuesday 28 January

Do Now: Quadratic functions

1. Function operations, composition, inverse
2. Interpreting quadratic functions in vertex form
3. Solving graphical situations

Exam makeup: Dayna, Monica, Wendy
(collect take-homes from vector group)

Lesson: Factored form; "solutions," "roots," "zeros," x-intercepts
Quadratic functions pp. 233-236

Homework: Deltamath Factoring (continue textbook problems)

GQ: How do we graph quadratics when $a \neq 1$?

CCSS: HSF.IF.C8.A Factor quadratic functions to show zeros 5.2 Wednesday 29 January

Do Now: Solving quadratic equations

1. Factoring quadratic functions
2. Interpreting quadratic functions in vertex form
3. Solving graphical situations

Lesson: Vertical stretch, the *a* parameter
The axis of symmetry

Homework: Deltamath Completing the square, due Thursday
(continue textbook problems)

GQ: How do we factor by "completing the square"?

CCSS: HSF.IF.C8.A Complete the square of quadratic functions 5.3 Friday 31 January

Do Now: Solving quadratic equations

Classwork counts double while Dr. Huson is out!

1. Graphing quadratic functions
2. Factoring quadratic functions
3. Solving graphical situations

Please complete Workplace Visits career questionaire.

Lesson: Completing the square, converting to vertex form

Homework: Deltamath due Sunday 10:00pm (continue textbook problems)

GQ: How do we use the quadratic formula?

CCSS: HSF.IF.C8.A Complete the square of quadratic functions 5.4 Monday 3 February

Do Now: Solving quadratic equations

1. Completing the square
2. Graphing quadratic functions
3. Factoring quadratic functions

Lesson: Applying the quadratic formula

Homework: Deltamath due tomorrow 10:00pm
(continue textbook problems)

GQ: How do we use the quadratic formula?

CCSS: HSF.IF.C8.A Complete the square of quadratic functions 5.5 Tuesday 4 February

Do Now: Solving quadratic equations

1. Completing the square
2. Graphing quadratic functions
3. Factoring quadratic functions

Lesson: Applying the quadratic formula

Homework: Deltamath due tomorrow 10:00pm
(continue textbook problems)

GQ: How do we derive the quadratic formula?

CCSS: HSF.IF.C8.A Complete the square of quadratic functions 5.5 Tuesday 4 February

Solve by completing the square

1. $x^2 - 8x + 5 = 0$
2. $x^2 + 12x + 4 = 0$
3. $3x^2 - 12x - 7 = 0$
4. $-2x^2 - 12x - 9 = 0$
5. $4x^2 + 8x - 9 = 0$
6. $-3x^2 - 18x - 35 = 0$
7. $5x^2 + 20x + 32 = 0$

Complete the square using arbitrary coefficients

$$ax^2 + bx + c = 0$$

GQ: How do we know the number of solutions of a quadratic function?

CCSS: HSF.IF.C8.A Complete the square of quadratic functions 5.5 Tuesday 4 February

Do Now Quiz: Calculator practice

1. Graphical solutions of systems of functions
2. Linear regression
3. Frequency tables
4. Complex calculations (e.g. cosine rule)

Lesson: Using the discriminant, D or Δ

Homework: Deltamath due tonight 10:00pm (continue textbook problems)

GQ: How do we know the number of solutions of a quadratic function?

CCSS: HSF.IF.C8.A Complete the square of quadratic functions 5.6 Wednesday 5 Feb

Do Now: Solving quadratic equations

1. Graphing quadratic functions
2. Factoring quadratic functions
3. Completing the square

Lesson: Completing the square, converting to vertex form

Homework: Deltamath due tonight 10:00pm (continue textbook problems)

GQ: How do we graph polynomial functions?

CCSS: HSF.IF.C8.A Complete the square of quadratic functions 5.7 Thursday 6 February

Do Now: Solving quadratic equations

1. Graphing quadratic functions
2. Factoring quadratic functions
3. Completing the square

Lesson: Features of polynomial graphs, increasing/decreasing

Homework: Deltamath (continue textbook problems)

GQ: How do we graph polynomial functions?

CCSS: HSF.IF.C8.A Complete the square of quadratic functions 5.8 Monday 10 February

Do Now: Solving quadratic equations

1. Graphing quadratic functions
2. Factoring quadratic functions
3. Completing the square

Lesson: Features of polynomial graphs, increasing/decreasing

Assessment: calculator practice Problem Set C Homework: Deltamath (continue textbook problems)

GQ: How do we graph polynomial functions?

CCSS: HSF.IF.C8.A Complete the square of quadratic functions 5.9 Tuesday 11 February

Deltamath: Polynomial graph features

1. Graphing quadratic functions
2. Factoring quadratic functions
3. Polynomial graphs, extrema, increasing, decreasing

Lesson: Features of polynomial graphs, increasing/decreasing

Homework: 5.8 CW IB test problems pdf

GQ: How do we understand quadratics?

CCSS: HSF.IF.C8.A Complete the square of quadratic functions 5.10 Wednesday 12 February

Do Now: Solving quadratic equations

1. Graphing quadratic functions
2. Factoring quadratic functions
3. Completing the square

Lesson: Quadratics exam review

Homework: Study for exam tomorrow

GQ: How do we understand quadratics?

CCSS: HSF.IF.C8.A Complete the square of quadratic functions 5.11 Thursday 13 February

Unit test - No Calculator

1. Graphing quadratic functions
2. Factoring quadratic functions
3. Completing the square
4. Quadratic formula
5. Uses of the discriminant

Homework: Polynomials handout

GQ: How do we graph tangents to functions?

CCSS: HSF.IF.C8.A Understanding rate of change 5.11 Thursday 27 February

Do Now: Linear equation practice

1. Write down the equation of the line through $(2, -3)$ with slope $m = 2$
2. Write down the equation of the line through $(-1, 0)$ perpendicular to the line with slope $m = 2$
3. Sketch the function $f(x) = x^2 + 1$ and $g(x) = -2x$ on the same axes

Lesson: Polynomial function terminology, the power rule
Homework: Deltamath calculus practice