

Mathematics Class Slides

Bronx Early College Academy

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2 March 2020

6.1 Intro to calculus

Wednesday 26 February

6.2 Intro to calculus

Thursday 27 February

6.3 Power rule - Deltamath practice

Friday 28 February

6.4 Review calculator functions

Monday 2 March

GQ: How do we graph tangents to functions?

CCSS: HSF.IF.C8.A Understanding rate of change

6.1 Wednesday 26 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

GQ: How do we graph tangents to functions?

CCSS: HSF.IF.C8.A Understanding rate of change

6.2 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

GQ: How do we graph tangents to functions?

CCSS: HSF.IF.C8.A Understanding rate of change

6.3 Friday 28 February

Do Now: Differentiation of polynomials practice

1. Find the derivative of $h(x) = x^2 + 5$
2. Given $g(x) = x^3 + 12x^2 - 1$. Find $g'(x)$
3. Given $f(x) = x^3 + 7$.
 - 3.1 Find $f(-1)$
 - 3.2 Find $f'(x)$
 - 3.3 Find the derivative of f when $x = -1$.
 - 3.4 Write down the equation of the tangent to f at $x = -1$

Lesson: Apply the power rule for taking derivatives

Classwork: Deltamath calculus practice (finish for homework)

GQ: How do we graph tangents to functions?

CCSS: HSF.IF.C8.A Understanding rate of change

6.4 Monday 2 March

Do Now: $f(x) = x^3 - 5x^2 + 5x + 2$

1. What point does f go through when $x = 1$?
2. Find $f'(x)$
3. What is the slope of the line tangent to the function when $x = 1$?
4. Write down the equation of the tangent to f at $x = 1$
5. Graph the function and its tangent at $x = 1$ on your calculator.
6. Sketch the graph.

Lesson: Using the Casio to calculate derivatives

Classwork: Practice calculator functions (pop quiz warning!)

GQ: How do we graph tangents to functions?

CCSS: HSF.IF.C8.A Understanding rate of change

6.4 Monday 2 March

Calculator practice

1. Find the solutions for the system, $f(x) = g(x)$.

$$f(x) = -2x^2 + 5x + 7 \quad g(x) = -2x + 4$$

2. Perform a linear regression on the data, finding $y = ax + b$.

x	17	18	17	19	23	15	16
y	71.1	78.6	69.2	71.2	80.5	55.7	58.4

- 2.1 Write down the value of a , b .
- 2.2 Write down the correlation coefficient r .
- 2.3 Use your regression line to estimate y for $x = 22$.
3. $a = 12.3$, $b = 14.7$, $\theta = 71^\circ$. Find the third side length, c . [3]
4. $a = 11.4$, $b = 17.1$, $c = 16.0$.