Mathematics Class Slides

Bronx Early College Academy

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13-17 September 2021

BECA / Dr. Huson / 11.1 IB Math Unit 1

Learning Target: I can measure and diagram my world

CCSS: HSG.CO.A.1 Know precise geometric definitions 1.1 Monday 13 Sept

Welcome back to school

Do Now: Measurement

1. Notebook first page: Name / Course / Instructor
2. Diagram people closest to you and their distance
3. Early finishers: Calculate diagonal distances

Supply list: Composition book, looseleaf, pencils & pens, compass and ruler; Optional: calculator, folder

Lesson: Linear functions, slope, solving; vertical line test p 4-6

Homework: Diagram your bedroom (with measurements), or another room

Learning Target: I can apply domain and range

CCSS: HSF.IF.C.7 Analyze functions 1.2 Tuesday 14 Sept

Do Now: In your notebook

1. Solve for x:
   $$x - 7 = 11 \qquad 2(x - 5) \geq 4$$
2. What is the slope of the line $y = 3x - 2$?
3. $f(x) = x^2 - 3$. Find $f(1)$

Lesson: Domain, range, function review pp 204-8

Groupwork: Investigation 1 pp 206-8

Homework: Skills Check p 205

Learning Target: I can employ the language of functions

CCSS: HSF.IF.C.7 Analyze functions 1.5 Monday 20 Sept

Do Now: In your notebook

1. Solve for x:
   $$2x - 9 = 3 \qquad 3(x - 3) \leq 12$$
2. What is the slope of the line $y = 2x - 5$?
3. $f(x) = x^2 + 6$. Find $f(2)$

Lesson: Independent and dependent variables

Linear equations and function review pp 204-8

Groupwork: Exercises 5C pp 220-221

Learning Target: I can use functions to model situations

CCSS: HSF.IF.C.7 Analyze functions 1.6 Tuesday 21 Sept

Do Now: Pyramid lifting routine problem (Bill Geiger)

Set 1: 135 lbs, 15 reps
Set 2: 185 lbs, 12 reps
Set 3: 205 lbs, 10 reps
Set 4: 225 lbs, 8 reps
Set 5: 245 lbs, 6 reps
Set 6: 265 lbs, 4 reps

1. On the third set, when $x = 3$, how much weight is lifted?
2. On which set is the weight 245 pounds?
3. Interpret the ordered pair $(2, 185)$ in this context.
4. Does the weight increase by a constant amount with each set?

Prequiz handout; Function review pp 204-220

Learning Target: I can use functions to model situations

CCSS: HSF.IF.C.7 Analyze functions 1.7 Wednesday 22 Sept

Do Now Quiz

1. On the third set, when $x = 3$, how much weight is lifted?
2. On which set is the weight 245 pounds?
3. Interpret the ordered pair $(2, 185)$ in this context.
4. Does the weight increase by a constant amount with each set?

Review simplifying radicals, solving equations with fractions
Function review pp 204-220
Test Friday on functions

Learning Target: I can use functions to model situations

CCSS: HSF.IF.C.7 Analyze functions 1.8 Thursday 23 Sept

Do Now: Algebra warmup problems

Given the linear function $f(x) = -2x + 12$

1. Find $f(0)$
2. $f(x) = 0$. Find x.

Function review pp 204-220. Test tomorrow on functions

Learning Target: I can use linear equations to model situations

CCSS: HSF.IF.C.7 Analyze functions 1.9 Monday 27 Sept

Do Now: Investigation 5 page 221

Answer questions 1, 2, and 3 (including the table on page 222)

Function test makeup: Sabrina, Qwaa, Sthefani.

Groupwork: problems 5D page 225-6

I can use linear equations to model situations

Investigation 5 page 221 1.9 Monday 27 Sept

Linear functions:

$f(x) = 2x + 1$

$g(x) = -3x + 2$

$h(x) = 3$

Learning Target: I can use linear equations to model situations

CCSS: HSF.IF.C.7 Analyze functions 1.10 Tuesday 28 Sept

Do Now: Example 6 page 222

Compare the two linear models (d) and (e). (formulas page 222)

1. Which has the greater rate of change?
2. Which has the higher initial value?

Function test makeup: Sthefani.

Lesson: Calculating rate of change (slope or gradient)

Variables and parameters Groupwork: problems 5D page 225-6

Learning Target: I can use linear equations to model situations

CCSS: HSF.IF.C.7 Analyze functions 1.11 Wednesday 29 Sept

Do Now: Calculate your mastery score Functions

Let x be the number of points correct on #1-8

1. $f(x) = \frac{x}{10} + 0.33$
2. $max(1, min(4, f(x)))$

Function test review, test corrections due Monday

Lesson: Calculating rate of change (slope or gradient)

Variables and parameters Groupwork: problems 5D page 225-6

Functions mastery score (problems #1-8)

Let x be the number of points

1. $f(x) = \frac{x}{10} + 0.33$
2. $max(1, min(4, f(x)))$
3. Example, 25 points $f(25) = \frac{25}{10} + 0.33 = 2.8$

IB test scoring, points:

1. "A1" - correct/Accurate value
2. "M1" - proper Method used
3. "R1" - good Reasoning
4. "N1" - No work, but partial credit
5. "ft" - correct, but Following Through on previous errors

Learning Target: I can use linear equations to model situations

CCSS: HSF.IF.C.7 Analyze functions 1.12 Thursday 30 Sept

Do Now: Textbook example page 222

Lesson: Calculating rate of change (slope or gradient)

Variables and parameters Groupwork: problems 5D page 225-6

Learning Target: I can use direct variation as a model

CCSS: HSF.IF.C.7 Analyze functions 1.13 Friday 1 Oct

Do Now: A linear function is such that $f(1) = 5$ and $f(5) = 1$.

(#7 page 225)

1. Name two of the function's points as ordered pairs.
2. Find the gradient (slope) for the function f

Lesson: Direct variation, constant of proportionality, IB formulas

SL 2.1	Equations of a straight line	$y = mx + c$; $ax + by + d = 0$; $y - y_1 = m(x - x_1)$
	Gradient formula	$m = \frac{y_2 - y_1}{x_2 - x_1}$

Groupwork: problems 5E page 228