Mathematics Class Slides

Bronx Early College Academy

Chris Huson

5-21 September 2018

1.4 Drui

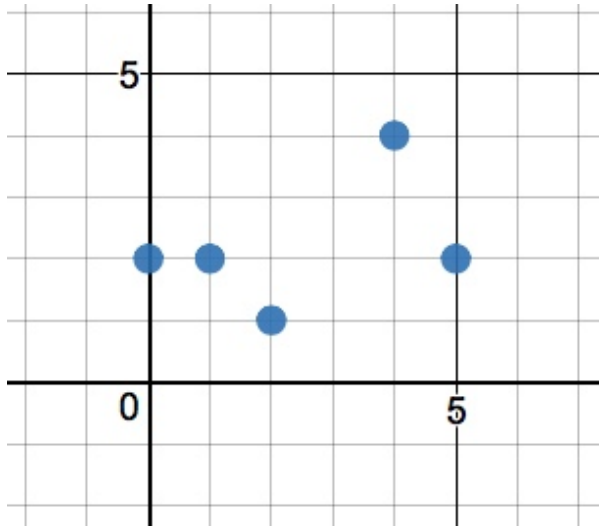
1.5 Drui - Monday September 17

1.6 Drui Tuesday September 18th, laptop cart D

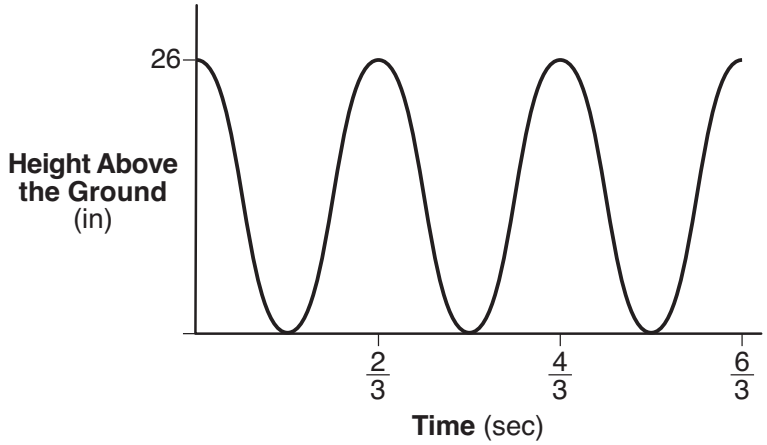
1.7 Drui Review Thursday September 20th

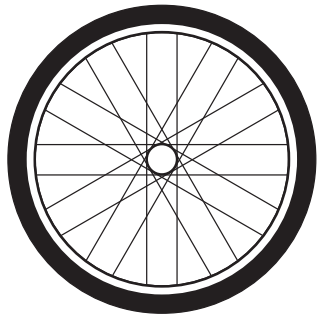
Domain and range of a function 1.5

1. Write down the domain and range of the function graphed



2. What is the range of this function modeling a bicycle wheel?





Function substitution 1.5

Given $f(x) = 3x + 2$. What is $f(2x - 1)$?

1. Perform the substitution, putting $2x - 1$ in parenthesis.

2. Simplify, beginning each line with a leading equals sign if it is equal to the line above.

GQ: How do we solve quadratic equations?

CCSS: HSF.IF.B.4 Interpret key features of functions and their graphs 1.4 Tuesday 10 Sept

Do Now: Factoring

1. Find the intercepts, axis of symmetry, and minimum point of the graph of the function $f(x) = (x-1)(x-5)$?
2. Factor the function $g(x) = x^2 - x - 12$ to determine the features of its graph.
3. Convert the function $h(x) = x^2 + 4x + 3$ to the vertex form, $h(x) = a(x-h)^2 + k$. Write down its vertex.

Lesson: Factoring, setting $= 0$, checking solutions, $x-$ and $y-$intercepts, vertex, axis of symmetry

Homework: Factoring practice, completing the square, graphing
Skip around and do what you can by tomorrow

How do we graph quadratics?

CCSS: HSF.IF.B.4 Interpret key features of functions and their graphs 1.5

Consider the function $f(x) = -x^2 + 2x + 3$

1. Factor f and state its zeros.
2. Restate f in vertex form. Write down the vertex as an ordered pair.
3. Over what intervals is the function increasing, decreasing, and neither?
4. If $f(x)$ represents the height of a diver over the domain $0 \leq x \leq 3$, interpret $f(0)$, the vertex, and $f(3)$
5. What does the "slope" of the curve represent?

Lesson: Example 18 p. 54

How do we communicate mathematical results?

CCSS: MP.4 Model with mathematics 1.6

Technical skills needed to communicate mathematics

1. Word processing: Microsoft Word and equation editor
2. Computer calculators: Desmos; domain restriction, labeling
3. Cloud storage: Dropbox
4. Technical writing standards: MLA format (Purdue OWL)
5. Writing style: declarative
6. Assessment criteria: IB exploration criterion *B: Mathematics Presentation*

Lesson: Shared folder structure, graph copy/paste, MLA template

Homework: Pre-test

GQ: How do we simplify exponents?

CCSS: HSN.RN.A.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents 1.7

Do Now: Exponent and radicals practice

1. Exponent product, quotient, and power rules
2. Fractional exponents
3. Negative exponents
4. Graphing exponential function

Lesson: Product, quotient, power rules, $\sqrt{x^4}$

Homework: Exponent and radicals practice