

Figure 8.39. Beyond Linear: Working with Polynomials Lesson Plan –Day 5

Date: 10/28

Standards:

Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.

Use the structure of an expression to identify ways to rewrite it.

Prove polynomial identities and use them to describe numerical relationships.

Rewrite simple rational expressions in different forms; write $\frac{a(x)}{b(x)}$ in the form $q(x) + \frac{r(x)}{b(x)}$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.

Highlighted Standards for Mathematical Practice:

SMP2: Reason abstractly and quantitatively

SMP 3: Construct viable arguments and critique the reasoning of others

SMP5: Use appropriate tools strategically.

SMP6: Attend to precision.

SMP7: Look for and make use of structure.

SMP8: Look for and express regularity in repeated reasoning.

K: Strategies for operations with polynomials (e.g. lattice multiplication)

Binomial expansion using Pascal's triangle

U: Polynomials are very similar to integers. Arithmetic with polynomials works in the same ways as arithmetic with integers. They are closed in addition, subtraction, and multiplication, just as are integers. (Algebra is grown up arithmetic.).

D: Operate on polynomials using multiple strategies.

Use Pascal's triangle to expand binomials.

Explain how operating on polynomials is like operating on integers.

Small Group MATH Stations (Readiness differentiation: Color-coded activities at each station):

M – Math Modeling – Use operations with polynomials to model and solve scenarios

A – Alone Time – Complete a worksheet on repeated differences, operations and binomial expansion

T – Take a Chance – Thinking about polynomial division: what about factoring? Do I really need the variables?

H – Hmmmm..- How would you answer the following challenging questions?

