Math 2 (Very rough!) Lecture Notes
Sections R.2 – R.3

R.2: Expressions

Things to know about multiplying

"Counting" and "multiplying" by x are basically the same thing.
Multiplying variables is indicated by positioning them right next to each other. Multiplication becomes "invisible" between a constant number and the variable it counts.

ab = "a times b"
7x = "7 times x" = "7 x's"
    7 is the coefficient
    X is the "type" of term, like a unit

(Example 1 a, d)

Things to know about parentheses

Parentheses mean "this whole number". They help us think about expressions that are parts of other expressions.

Translating expressions

Example 2 a,b (me), c, d (students)

Example 3 revised (me)
"The cost of renting a car is $35 plus $50 per day rented. Express the cost of renting a car in terms of the number of days rented."

Evaluating an Expression

Means "finding its value"
Use the "empty parentheses" setup to help with operations!!!

I'll illustrate with an example.
Ex. 4: Students

Simplifying or Rewriting an Expression

<u>Distributing Mult over Addition / Subtraction</u>

Illustrate geometrically with sticks and stacks? (Positive coefficients only)
Illustrate algebraically with positive and negative coefficients

Combining Like Terms

"Terms" are numbers added / subtracted together
Every term comes attached to the sign on its left
If the very first term is positive, the + sign can be invisible.
We can only add / subtract ("combine") terms with identical units!
Add / subtract the coefficients only; keep the units.

4 dollars + 6 dollars = 10 dollars
$5x + 3x = 8x$
$20x + 3y$ can not be combined!
$4x^2 + 3x - 5$ can not be combined
$7 + 2x$ can not be combined! ("Chips and sticks" visualization?)

For many expressions, "simplify" means "Distribute, then combine like terms"

Students: Ex. 8a-c, 9

R.3: Exponents

The Law(s) of Exponents

Exponents operate one level straight down

Exponents distribute over mult and division only

Examples 1 & 2 together

Zero and negative exponents

Remember that multiplication begins with 1, not 0!

Negative exponent = "Otherator"

Ex. 4 a, b, c as time permits

Polynomials

A polynomial is an expression with whole number powers of x.

A _____-nomial is a polynomial with ______ terms (use Latin up to 3)

A polynomial of _______ degree means that the highest power is ______ .

(Special names up to 3)

We usually write the terms in order of degree, with the highest power first. (Descending order or Standard Form)

We already know how to multiply polynomials by each other, but extra practice is given in Examples 12 – 15.