Algebra 2 w/ Trigonometry

Unit 1 (part 1) : Real Numbers, Equations

Book sections covered here:
Chapter 1: Sections 1-1 through 1-9. NOT including sections 1-10 and 1-11.

Arithmetic (numbers and operations)

Term(s)	Words of wisdom	comments
Real numbers		'Real' was introduced in the 17th century, to distinguish from 'imaginary'
Natural numbers		
Whole numbers		
Integers		
Rational numbers		Fractions Decimal that ends Decimal that repeats
Irrational numbers		Square root of non-perfect squares
a - b = a + (-b)		See in the book: Additive inverse, opposite Difference
$\frac{a}{b} = a * \frac{1}{b}$ ($\frac{1}{b}$ is the reciprocal of b)		See in the book: Multiplicative inverse, reciprocal Quotient
Divide by zero		

Algebraic expressions

Term(s)	Words of wisdom	comments
Variable, Constant Evaluate algebraic expression Substitute Evaluate		
Equivalent expressions		
Commutative property Addition Multiplication		
Associative property Addition Multiplication		
Addition identity : 0 Multiplication identity: 1		
Distributive property of multiplication over addition		-(a+b) = -a + (-b) = -a -b
Factoring Like terms Coefficients		Simplify ; Collect like terms

Solving equations

Term(s)	Words of wisdom	Comments
Addition property of equality	a = b ➔ a + c = b + c	
Multiplication property of equality	a = b ➔ a*c = b*c	
Identity	An equation that is true for all acceptable replacements.	e.g, 6x + 3 = 3*(2x + 1)
Word problems		
Check / Validate your result!!		

Exponential notation

Term(s)	Words of wisdom	Comments
Exponent notation Base Exponent Base to the Power of Exponent		
$a \neq 0$ $a^4 = a * a * a * a$ $a^3 = a * a * a$ $a^2 = a * a$ $a^1 = a$ $a^0 = 1$ $a^{-1} = \frac{1}{a^1} = \frac{1}{a}$ $a^{-2} = \frac{1}{a^2}$		
$a^m * a^n = a^{m+n}$		If base is the same, we can add/subtract exponents
$\frac{a^m}{a^n} = a^{m-n}$		See above.
$(a^m)^n = a^{m*n}$		$\left(\frac{a^m}{b^n}\right)^p = \frac{a^{m*p}}{b^{n*p}}$
Scientific notation		$a * 10^n$, where n is integer, and $1 \leq a < 10$.
Order of operations	Parentheses Exponents Multiplication/Division Addition/Subtraction	PEMDAS – Please Excuse My Dear Aunt Sally.