### Re-Think Exercise for Pre-college Math Sequence

#### Selected Elementary Algebra topics

<table>
<thead>
<tr>
<th>Graphing topics</th>
<th>Boost</th>
<th>Keep</th>
<th>Reduce</th>
<th>Remove</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graph a linear equation using intercepts</td>
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<tr>
<td>Graph horizontal and vertical lines</td>
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<tr>
<td>Use the point-slope form to write equations of a line</td>
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<tr>
<td>Write linear eqs that model data and make predictions</td>
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<th>Systems</th>
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<tbody>
<tr>
<td>Solve systems of linear equations by substitution</td>
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<tr>
<td>Solve systems of linear equations by the addition</td>
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<tr>
<td>Solve simple interest, mixture, and motion problems</td>
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#### Selected Intermediate Algebra topics

<table>
<thead>
<tr>
<th>Factoring Topics</th>
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<tbody>
<tr>
<td>Factor trinomials of the form (ax^2 + bx + c)</td>
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<tr>
<td>Factor the difference of two squares</td>
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<tr>
<td>Factor the sum or difference of two cubes</td>
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<table>
<thead>
<tr>
<th>Rational Expressions</th>
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<tbody>
<tr>
<td>Multiply and divide rational expressions</td>
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<tr>
<td>Add/sub rational expressions</td>
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<tr>
<td>Simplify complex rational expressions</td>
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<tr>
<td>Simplify radicals</td>
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<tr>
<td>Add and subtract radical expressions</td>
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<tr>
<td>Rationalize denominators with two terms</td>
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<tr>
<td>Perform basic operations with complex numbers</td>
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<th>Quadratics</th>
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<tr>
<td>Solve quadratic equations using the sq root method</td>
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<td>Solve quadratic equations by completing the square</td>
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<tr>
<td>Solve quadratic equations using the quadratic formula</td>
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<tr>
<td>Solve min/max problems</td>
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<tr>
<td>Solve eqs that are quad in form, using substitution</td>
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**Topic Outlines**

**Applied Elementary Algebra Topics**

Numeration (no calculator):
- fraction operations (proper and improper but not mixed numbers)
- decimal operations
- signed numbers
- rounding
- some use of percents

Variables and expressions:
- using a variable to explain a pattern
- evaluating with a given value
- order of operations
- like terms

Equations:
- one-step, two-step
- variable on both sides
- some simplifying with distributive rule
- inequalities (regular and compound)
- reading a graph associated with an equation (i.e. solve 1.5x = 3.75 given graph of y = 1.5x)
- rearranging a formula
- writing an equation to solve a word problem
- ratio and proportion

Graphs:
- reading and plotting points
- plotting using a table
- plotting and understanding intercepts
- slope
- y = mx + b
- Ax + By = c (intercept graphing method)
- parallel and perpendicular
- (point-slope form is skipped)
- vertical and horizontal lines

2X2 systems:
- solve by graphing, substitution
- applications
- (elimination method is skipped)

Measurement:
- US and metric conversions of length, weight, and volume
- Temperature

Stats:
- mean, median, mode, range
- reading a pie chart and histogram

**Applied Intermediate Algebra Topics**

Exponents:
- rules
- evaluating with given values
- Pythagorean theorem
- negative exponents
- scientific notation

Polynomials:
- operations (add, sub, mult)
- division by monomials
- (long division is skipped)

Factoring: (presented as needed for solving quadratics)
- GCF
- factoring trinomials with lead coef of 1
- (non-1 coef is skipped)
- difference of squares
- optional: perfect square trinomial pattern

Quadratics:
- solve by square roots, factoring
- solve by quadratic formula
- parabolas (intercepts, vertex, graphing)
- light version of completing the square

Rationals:
- evaluating
- simplifying
- solving
- (operations and complex frac are skipped)

Radicals:
- ID rational and irrational numbers
- order of ops with square and cube roots
- simplifying -- focus on simplifying numerical radicands
- optional: light coverage of like radical terms
- (mult, div, rationalize are skipped)
- solving with one radical
- distance formula

Functions:
- function notation
- domains, evaluating
- graphing, vertical line test

Log/Exponential:
- growth models
- compound interest
- graphs
- logarithms (not natural log)
- solving basic exponential equations
- solving simple log eq, change of base
- (properties of logs are skipped)
- base e compound interest