Topics for MA 102 Proficiency Exam

1) Conversions – Metric system and Customary system
2) Patterns (Inductive reasoning, Arithmetic sequences, Geometric sequences)
3) Algebraic thinking (Equation solving, Word problems, Translating word expressions)
4) Describing sets (Set notation, Venn diagrams, Subsets, Complements of sets, Cardinal Number, One-to-one correspondence)
5) Set Operations (Set intersection, Set union, Difference of sets, Cartesian product)
6) Properties (Laws) (Associative, Commutative, Closure, etc.)
7) Numeration systems (Place value, Operations of other bases)
8) Order of operations
9) Functions (Domain, Range, Arrow diagrams, Graphing, Composition of two functions)
10) Functions (Writing a function equation from word problem)
11) Algorithms (Addition, Subtraction, Multiplication (lattice), Division)
12) Additive Inverse, Absolute Value
13) Integers (Addition, Subtraction, Multiplication, Division, Ordering, Word problems)
14) Prime Factorization (Prime, Composite, Factor trees)
15) Simplifying Polynomials, Factoring Polynomials
16) Divisibility, Greatest Common Factor (GCD) and Least Common Multiple (LCM)
17) Rational Numbers (Fractions, Equivalent fractions, Simplifying fractions, Ordering)
18) Addition and Subtraction of Rational Numbers (Fractions, Mixed numbers, and Algebraic Fractions)
19) Multiplication and Division of Rational Numbers (Fractions and Mixed numbers)
20) Properties of Exponents; Multiplying polynomials (FOIL)
21) Proportional Reasoning (Proportions, Unit Rate, Word Problems)
22) Decimals (Writing as a word expression)
23) Decimals (Adding, Subtracting, Multiplying, Dividing, Ordering, Convert to Fraction)
24) Percent (Calculating, Word Problems)
25) Probability (Outcome, Sample space, Determining probabilities)
26) Probability (Mutually exclusive, Complementary and Non-Mutually exclusive events)
27) Multi-stage experiments with Tree Diagrams
28) Geometric Probability (Area Models)
29) Odds, Conditional Probability, and Expected value
30) Permutations (Unlike objects, Like objects)
31) Combinations
32) Statistical Graphs (Pictographs, Line plot, Stem-and-Leaf plot, Frequency Tables)
33) Statistical Graphs (Histograms, Bar Graphs, Line Graphs, Scatterplots, Circle Graphs)
34) Measures of Central Tendency (Mean, Median, Mode)
35) Measures of Variation (Range, Quartiles, Interquartile Range, Boxplots, Outliers)
36) Geometry (Classify polygons, Classify triangles, Similar triangles, Find missing angle)
37) Geometry (Parallel, Perpendicular, Lines of Symmetry)
38) Geometry (Area, Surface area, Volume, Angles of Prisms)
39) Graph linear equation (state slope and y-intercept)
40) Solve systems of equations