Possible Pre-Algebra Topics on Qualifying Exam for Honors Algebra

These are concepts/topics students need to be successful in Honors Algebra.

Knowledge of Numbers
- Identify perfect squares/square roots, prime numbers, consecutive numbers
- Represent numbers on a number line
- Simplify using order of operations, including fractions, signed numbers, decimals
- Simplify using exponents
- Understand absolute value of numbers from a geometric and algebraic perspective
- Estimate decimals and convert between decimals and fractions
- Multiply powers of ten without a calculator
- Understand properties of numbers (commutative, associative, distributive, identity, inverse)

Algebraic Expressions
- Evaluate variable expressions containing integers, fractions, decimals, exponents
- Simplify expressions using order of operations and distributive property
- Write expressions in one variable to model situations

Linear Equations in One Variable
- Solve linear equations containing integers, fractions, decimals
- Solve linear equations using distributive property with variables on both sides
- Solve linear equations using ratio, proportion and percent
- Understand the conditions for which a linear equation would have one solution, no solution, or an infinite number of solutions

Linear Inequalities in One Variable
- Solve and graph simple inequalities

Geometric Shapes
- Find perimeter (circumference) and area of rectangles, triangles and circles
- Find the volume and surface area of rectangular prisms

Coordinate Plane
- Recognize and be able to plot points on a rectangular coordinate system
- Identify the quadrants of a rectangular coordinate system
- Calculate slope (rate of change) of a line given ordered pairs or a graph
- Recognize equations of lines and graph lines in slope-intercept form

Word Problems
- Write and solve linear equations and inequalities to model situations
- Solve problems using geometric shapes
- Solve problems using simple probability
- Convert units