

# Problem Sequencing

## UIL High School Number Sense Test

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### **Problem 1 - 20 \***

- 1) Addition, subtraction, multiplication, & division of Integers, Mixed Numbers, Fractions, and Decimals
- 2) Order of Operations
- 3) Use of the Distributive Property
- 4) Comparison of Fractions and Decimals
- 5) Multiplication Short-Cuts
- 6) Squaring Numbers
- 7) Conversion Problems (either way):  
Percent/Fractions, English/Metric,  
Roman Numerals/Arabic Numerals,  
Measurement units  
(length, weight, capacity, time)
- 8) Greatest Common Divisor (GCD) and Least Common Multiple (LCM)
- 9) Percent Problems
- 10) Mean, Median, & Mode
- 11) Sums of Integers
- 12) Remainder Problems
- 13) Consumer Type Problems
- 14) Number Theory Problems Involving:  
Prime Numbers, Divisors, Sums of Divisors, etc.

### **Problems 21 - 40 \***

- 1) Powers of Numbers
- 2) Substitution
- 3) Word Problems
- 4) Inverses
- 5) Absolute Value
- 6) Ratio/Proportion
- 7) Square Roots/Cube Roots
- 8) Sets
- 9) Base System Conversion Problems
- 10) Solving Simple Equations
- 11) Systems of Equations
- 12) Repeating Decimals to Fractions
- 13) More Remainder Type Problems
- 14) Perimeter & Area of Polygons and Circles
- 15) Sequences
- 16) Quadratic & Cubic Equation Problems

### **Problems 41 - 60 \***

- 1) Laws of Exponents
- 2) Right Triangle Problems
- 3) Coordinate Geometry Problems
- 4) Regular Polygon Problems
- 5) Inequalities
- 6) Applications of Theorems from Geometry
- 7) Direct and Inverse Variation
- 8) Sequences & Series (Finite & Infinite)
- 9) Complex Numbers
- 10) Logarithms & Logarithmic Equations
- 11) Factorials, Permutations, & Combinations
- 12) Probability/Odds
- 13) Conics
- 14) Binomial Theorem (Expansion)
- 15) Base System Problems Using Operations
- 16) Roots of equations
- 17) Polygonal numbers

### **Problems 61 - 70 \***

- 1) Volume & Surface Area
- 2) Greatest Integer
- 3) Application of Remainder Theorem
- 4) Trigonometry
- 5) Determinants
- 6) Matrices
- 7) Vectors
- 8) Composite Functions
- 9) Bases Involving Decimals or Fractions
- 10) Polar/Rectangular Coordinates

### **Problems 71 -80 \***

- 1) Function domains and ranges
- 2) Modular Arithmetic
- 3) Limits
- 4) Derivatives
- 5) Slopes of Tangent Lines
- 6) Horizontal & Vertical Asymptotes
- 7) Determining Critical Values
- 8) Maximum & Minimum Problems
- 9) Definite Integration
- 10) Inverse functions

\* A type of problem from a particular section could appear later in the test.

Example: A base problem could appear as problem #55, but should not appear earlier than problem #21.