

## Mathematics RIT Score: 251-260

### Number Sense and Operations

#### *Integers*

- Use the additive inverse property to solve problems
- Use order of operations rules

#### *New Vocabulary in this range:*

sum of opposites

#### *New Signs and Symbols:*

none

#### *Exponents and Scientific Notation*

- Evaluate powers with a negative exponent

#### *New Vocabulary in this Range:*

none

#### *New Signs and Symbols:*

none

### Patterns, Functions, and Algebra

#### *Solving Equations and Inequalities, Simplifying Expressions, Order of Operations*

- Simplify embedded expressions before solving linear equations and inequalities in one variable
- Identify and use the arithmetic properties of subsets of integers and rational, irrational, and real numbers
- Solve problems that use variables in expressions describing geometric quantities by solving for one variable
- Solve equations with variables as exponents
- Use the rules of exponents to multiply polynomials by monomials
- Derive linear equations by using the point-slope function
- Find the slope given two points on the line of a given graph
- Write the equation of a line when given the graph of the line, two points on the line, or the slope of the line and a point on the line
- Simplify monomials containing integer powers and roots
- Find the solution set for inequalities that include absolute values
- Identify the equation of a parabola
- Simplify expressions containing cube roots
- Solve expressions containing factorials
- Find the number of possible solutions for a system of equations
- Cube a binomial

#### *Quadratic Formula and Equations*

- Know the quadratic formula and demonstrates its proof by completing the square
- Identify discriminant and roots
- Use the quadratic formula to find the roots of a second-degree polynomial and solve quadratic equations
- Graph quadratic functions and know that their roots are the x-intercepts

### *Trigonometry*

- Find sin and cosine of a given angle
- Solve logarithmic functions

### *New Vocabulary in this Range:*

parabola, intercepts, number of solutions, simultaneous equations, counterexample, solution set, sin A, cosine, tangent, discriminant, imaginary solutions, difference of two squares, read solution set from graph, factor completely

### *New Signs and Symbols:*

none

## **Measurement**

### *Length, Weight, Volume*

- Find volume of cones and rectangular prisms and cylinders

### *Area, Perimeter, Circumference*

- Find area of inscribed figure by using midpoints and endpoints

### *Angle Identification and Measure*

- Relationship of size of angles and corresponding sides of a triangle

### *New Vocabulary in this Range:*

circumscribed, distance formula

### *New Signs and Symbols:*

formula for finding volume of a cone, formula for volume of a cube, formula for finding volume of a rectangular solid

## **Geometry and Spatial Sense**

### *Congruency and Similarity*

- Solve problems involving properties of similar triangles

### *Symmetry and Transformations*

- Solve problems involving rotations (turns) and reflections (flips)

### *Geometric Properties and Terminology*

- Identify properties and slope of lines
- Identify plane
- Identify midpoint and endpoint
- Identify perpendicular bisector
- Identify properties of polygons (rhombus, parallelogram)

### *New Vocabulary in this Range:*

slope, non-vertical and non-horizontal, midpoint, endpoint, rotational symmetry, reflected, perpendicular bisector, similar triangles, similar trapezoids, similar cylinders, conditional, counterexample, conclusion of in-then statement, interior of angle, exterior angle of regular polygon, interior angle of regular polygon, sum of angles in triangle equals 180 degrees, congruent angles, adjacent angles, vertical angles

### *New Signs and Symbols:*

none

## Data Analysis, Statistics, and Probability

### *Probability and Prediction*

- Calculate basic probability theoretically and use results to make predictions

### *Graphing*

- Derive linear equations by using the point-slope formula
- Derive and solve problems involving use of ordered pairs to determine area of a figure
- Know the effect of rigid motions on figures in the coordinate plane and space, including rotations, translations, and reflections
- Determine the axis of symmetry of a linear graph

### *New Vocabulary in this Range:*

none

### *New Signs and Symbols:*

none

## Problem Solving

- Solve problems involving ratio of a side of a figure to its area, perimeter, or volume
- Determine proportional parts of a number
- Use proportional relationships to determine lengths of sides of a figure that are represented by algebraic relationships
- Solve complex word problems with surface area, area, circumscribed figures, Pythagorean Theorem, consecutive integers
- Use clues given in word problems to decode correct answer
- Determine correct formula needed to solve problem
- Multiplication of matrices

### *New Vocabulary in this Range:*

none

### *New Signs and Symbols:*

none