Integrated Essentials 3

LOGIC AND PROOF (from Integrated II)

- use the terms and, or, not with Venn diagrams and number lines
- write implications and identify truth value
- identify valid and invalid arguments
- write biconditionals and identify truth values
- complete algebraic proofs
- define types of angles and write proofs about each type
- define parallel lines and characteristics and complete proofs

SIMILAR AND CONRGUENT TRIANGLES (from Integrated II)

- prove lines parallel
- define the triangles sum theorem
- define similar, congruent, isosceles and right triangles
- complete proofs for similar, congruent, isosceles and right triangles
- define geometric mean and solve
- identify the 45-45-90 and 30-60-90 triangles
- find missing sides using sine, cosine and tangent in right triangles

MODELING PROBLEM SITUATIONS (from Integrated III)

- write, apply and compare step-by-step procedures for solving problems
- use organized lists to solve problems
- use statistics and data displays to draw conclusions
- use graphs and equations to model situations and make decisions
- use systems of equations to solve problems
- use diagrams to solve problems
- make quantities as large or as small as possible to solve real life problems
- use systems of inequalities to model situations and find maximum and minimum values

EXPLORING AND APPLYING FUNCTIONS (from Integrated III)

- recognize and describe functions
- use linear functions to describe situations
- find the domain and range of a linear function
- use piecewise and absolute value functions to describe situations
- use quadratic functions to describe situations
- recognize, evaluate and graph direct variation and polynomial functions
- explore functions that involve radicals and use these functions to solve problems
- understand how rational functions are different from other types of functions. Use rational functions to solve problems.
- find a function of a function

LOGICAL REASONING AND METHODS OF PROOF (from Integrated III)

- review proofs and explore the relationship between implications and their converses, inverses, and contrapositives
- find formulas for the sums of interior and exterior angle measures in polygons
- examine relationships between inscribed polygons and circles

- examine relationships between inscribed angles and arcs of circles
- examine relationships between circumscribed polygons and circles

SEQUENCES AND SERIES (from Integrated III)

- describe and continue patterns
- graph sequences and find apparent limits
- use subscripts and formulas for sequences
- write and use formulas for sequences in which each term is found by using the preceding term
- identify sequences that have a common difference, a common ratio, or neither
- write explicit and recursive formulas
- find the sum of a finite non-geometric series
- use a formula to find the sum of a finite geometric series
- identify if a sequence is infinite or finite

MODELING AND ANALYZING DATA (from Integrated III)

- identify different types of frequency distributions
- use mean, range, and standard deviation to compare data sets with technology
- recognize special properties of normal distributions
- identify data as fitting a linear model. Use technology to find the equations of fitted lines
- decide whether a quadratic model fits data and use technology and matrices to find the quadratic models