

Math 8A

SCOPE OF COURSE

This course is divided into two semesters of study (A & B) comprised of five units each. The first-semester (A) is a study of real numbers; algebraic expressions; factoring, linear equations, and inequalities; functions and systems; and probability and statistics.

SEQUENCE OF SKILLS

UNIT 1 – Real Numbers

- Natural numbers, whole numbers, and integers
- Rational numbers
- Perfect squares, radicals, and irrational numbers
- Rational vs. Irrational numbers
- Prime and composite numbers
- Fractions and number sense
- Operations with fractions
- Decimals
- Scientific notation and percent
- Properties of real numbers
- Absolute value
- Prime factorization
- Estimation
- Problem solving

UNIT 2 – Algebraic Expressions

- Writing algebraic expressions
- Polynomials
- Combining like terms
- Adding and subtracting polynomials
- Algebraic expressions with exponents
- More on algebraic expressions with exponents
- Negative exponents
- Order of operations
- Evaluating algebraic expressions
- Multiplication of polynomials
- Multiplication of binomials
- Special binomial products
- Division of polynomials
- Applications of polynomials

UNIT 3 – Factoring, Linear Equations, and Inequalities

- Common factors
- Factoring trinomials
- Factoring the difference of two squares
- Factoring- mixed review
- One-step equations
- Two-step equations
- Multi-step equations
- Writing equations
- Literal equations
- Word problems
- Proportions
- Patterns and formulas
- Linear and non-linear relationships
- Inequalities

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SEQUENCE OF SKILLS

UNIT 4 – Functions and Systems

- Relations and functions
- Functional notation
- Graphing
- Slope of a line
- Intercepts
- Linear functions
- Slope-intercept form
- Applications of slope and intercepts
- Systems of equations – graphing
- Systems of equations – substitution method
- Systems of equations – elimination method
- Graphing inequalities
- Systems of inequalities
- Introduction to quadratic functions

UNIT 5 – Probability and Statistics

- Independent and dependent events
- Simple and compound events
- Mutually exclusive and complementary events
- Tree diagrams and multistage experiments
- Experimental probabilities and simulations
- Odds and counting principles
- Line plots and stem and leaf plots
- Scatter plots and line of best fit
- Bar graphs and histograms
- Line graphs and pictographs
- Circle graphs
- Measures of central tendency
- Box and whisker plots
- Venn diagrams