Texas Ninth Grade Mathematics Guidelines Checklist

Algebra I

The student uses mathematical processes to acquire and demonstrate mathematical understanding.

Strand 1: Mathematical Process Standards

- ❑ Apply problem-solving models to analyze information and find solutions
- ❑ Use tools (manipulatives, technology, etc.) as appropriate
- ❑ Communicate mathematical ideas using multiple representations
- ❑ Make and validate predictions and arguments
- ❑ Analyze mathematical relationships to connect and communicate ideas
- ❑ Display, explain, and justify mathematical ideas using precise language

Strand 2: Number and Algebraic Methods

- ❑ Extend the properties of exponents to include rational exponents
- ❑ Simplify numeric and algebraic expressions using laws of exponents
- ❑ Classify numbers as rational or irrational
- ❑ Approximate irrational numbers and locate them on a number line

Strand 3: Linear Relationships

- ❑ Determine domain and range from verbal descriptions, tables, graphs, and equations
- ❑ Interpret key features of linear functions (intercepts, slope, etc.)
- ❑ Calculate rate of change and initial value of a linear function
- ❑ Represent linear functions using multiple representations
- ❑ Write linear equations from tables, graphs, and real-world situations
- ❑ Solve linear equations and inequalities in one variable
- ❑ Solve systems of linear equations by graphing, substitution, and elimination

Strand 4: Quadratic Functions and Equations

- ❑ Identify and sketch graphs of quadratic functions
- ❑ Determine domain and range of quadratic functions
- ❑ Write quadratic equations given real-world data

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- ❑ Solve quadratic equations using factoring, completing the square, and the quadratic formula
- ❑ Analyze and interpret the solutions of quadratic equations in real-world contexts

Strand 5: Exponential Functions and Equations

- ❑ Understand and apply properties of exponential functions
- ❑ Model exponential growth and decay using tables, graphs, and equations
- ❑ Solve problems involving exponential functions in real-world situations

Strand 6: Data Analysis and Probability

- ❑ Represent and interpret data using scatterplots
- ❑ Interpret linear and nonlinear associations between variables
- ❑ Use correlation coefficients to describe the strength of associations
- ❑ Identify outliers and their effect on correlation
- ❑ Make predictions based on trend lines
- ❑ Distinguish between correlation and causation