

# High School: Concepts and Procedures Target A & B: Number and Quantity

Student Just Entering  
**Standard Nearly Met**  
Should Be Able To:

- Extend the properties of integer exponents to multiply expressions with rational exponents that have common denominators.
- Perform operations on rational numbers and familiar irrational numbers.
- Understand that rational numbers are closed under addition and multiplication.

Student Just Entering  
**Standard Met**  
Should Be Able To:

- Apply all laws of exponents on expressions with exponents that have common denominators.
- Rewrite expressions with rational exponents of the form  $(m/n)$  to radical form and vice versa.
- Use repeated reasoning to recognize that the sums and products of a rational number and a nonzero irrational number are irrational.

Student Just Entering  
**Standard Exceeded**  
Should Be Able To:

- Explain the relationship between properties of integer exponents and properties of rational exponents.

# High School: Concepts and Procedures Target C: Quantities

Student Just Entering  
**Standard Nearly Met**  
Should Be Able To:

- Choose and interpret the correct units in a formula given in a familiar context, including making measurement conversions between simple units.

Student Just Entering  
**Standard Met**  
Should Be Able To:

- Reason quantitatively to choose and interpret the units in a formula given in an unfamiliar context, including making compound measurement conversions.
- Define appropriate quantities or measurements in familiar contexts with some scaffolding to construct a model.
- Choose the scale and origin of a graph or data display.

Student Just Entering  
**Standard Exceeded**  
Should Be Able To:

- Define appropriate quantities or measurements in unfamiliar contexts with some scaffolding to construct a model.

# High School: Concepts and Procedures Target D, E, F, G, H, I, & J: Algebra

Student Just Entering  
**Standard Nearly Met**  
Should Be Able To:

- Use linear equations in one and two variables and inequalities in one variable to model a familiar situation and to solve a familiar problem.
- Explain solution steps for solving linear equations and solve a simple radical equation.
- Use properties of exponents to expand a single variable (coefficient of 1) repeated up to two times with a nonnegative integer exponent into an equivalent form and vice versa, e.g.,  $x^2 \cdot x^3 = x^{2+3} = x^5$ .
- Solve one-step linear equations and inequalities in one variable and understand the solution steps as a process of reasoning.
- Represent linear equations and quadratic equations with integer coefficients in one and two variables graphically on a coordinate plane.
- Recognize equivalent forms of linear expressions and write a quadratic expression with integer-leading coefficients in an equivalent form by factoring.
- Add multi-variable polynomials made up of monomials of degree 2 or less.
- Graph and estimate the solution of systems of linear equations.

Student Just Entering  
**Standard Met**  
Should Be Able To:

- Create and use quadratic inequalities in two variables to model a situation and to solve a problem.
- Write a quadratic expression in one variable with rational coefficients in an equivalent form by factoring, identify its zeroes, and explain the solution steps as a process of reasoning.
- Use properties of exponents to write equivalent forms of exponential functions with one or more variables with integer coefficients with nonnegative integer exponents involving operations of addition, subtraction, and multiplication without requiring distribution of an exponent across parentheses.
- Solve a quadratic equation with integer roots in standard form.
- Represent polynomial and exponential functions graphically and estimate the solution of systems of equations displayed graphically.
- Understand that the plotted line, curve, or region represents the solution set to an equation or inequality.
- Add and subtract multi-variable polynomials of any degree and understand that polynomials are closed under subtraction.

Student Just Entering  
**Standard Exceeded**  
Should Be Able To:

- Choose an appropriate equivalent form of an expression in order to reveal a property of interest when solving problems.
- Solve a formula for any variable in the formula.
- Provide an example that would lead to an extraneous solution when solving linear, quadratic, radical, and rational equations.
- Use a variety of methods such as factoring, completing the square, quadratic formula, etc., to solve equations and to find minimum and maximum values of quadratic equations.

# High School: Concepts and Procedures Targets K, L, M, & N: Functions

Student Just Entering  
**Standard Nearly Met**  
Should Be Able To:

- Understand the concept of a function in order to distinguish a relation as a function or not a function.
- Interpret quadratic functions in context, and given the key features of a graph, the student should be able to identify the appropriate graph.
- Graph quadratic functions by hand or by using technology.
- Identify properties of two linear or two quadratic functions.
- Understand equivalent forms of linear and quadratic functions.
- Build an explicit function to describe or model a relationship between two quantities.
- Add, subtract, and multiply linear functions.

Student Just Entering  
**Standard Met**  
Should Be Able To:

- Identify the domain and range of linear, quadratic, and exponential functions presented in any form.
- Use function notation to evaluate a function for numerical or monomial inputs.
- Appropriately graph and interpret key features of linear, quadratic, and exponential functions in familiar or scaffolded contexts and specify the average rate of change of a function on a given domain from its equation or approximate the average rate of change of a function from its graph.
- Graph linear, quadratic, logarithmic, and exponential functions by hand and by using technology.
- Analyze and compare properties of a linear function to properties of another function of any type.
- Build a recursive function to describe or model a relationship between two quantities.

Student Just Entering  
**Standard Exceeded**  
Should Be Able To:

- Find the input of a function when given the function in function notation and the output, or find the output when given the input.
- Describe complex features such as holes, symmetries, and end behavior of the graph of a function.
- Graph functions both by hand and by using technology.

# High School: Concepts and Procedures Targets O: Similarity, Right Triangles, and Trigonometry

Student Just Entering  
**Standard Nearly Met**  
Should Be Able To:

- Use the Pythagorean Theorem in unfamiliar problems to solve for the missing side in a right triangle with some scaffolding.

Student Just Entering  
**Standard Met**  
Should Be Able To:

- Use trigonometric ratios and the sine and cosine of complementary angles to find missing angles or sides of a given right triangle with minimal scaffolding.

Student Just Entering  
**Standard Exceeded**  
Should Be Able To:

- Solve right triangle problems with multiple stages and in compound figures without scaffolding.

# High School: Concepts and Procedures Targets J: Statistics and Probability

Student Just Entering  
**Standard Nearly Met**  
Should Be Able To:

- Describe the differences in shape, center, and spread of two or more different data sets representing familiar contexts.

Student Just Entering  
**Standard Met**  
Should Be Able To:

- Select the appropriate choice of spread as interquartile range or standard deviation based on the selection of the measure of center.

Student Just Entering  
**Standard Exceeded**  
Should Be Able To:

- Interpret data to explain why a data value is an outlier.

# High School: Problem Solving / Modeling and Data Analysis

Student Just Entering  
**Standard Nearly Met**  
Should Be Able To:

- Select tools to solve a familiar and moderately scaffolded problem and apply them with partial accuracy.
- Use the necessary elements given in a problem situation to solve a problem.
- Apply mathematics to propose solutions by identifying important quantities and by locating missing information from relevant external resources.

Student Just Entering  
**Standard Met**  
Should Be Able To:

- Use appropriate tools to accurately solve problems arising in everyday life, society, and the workplace.
- Apply mathematics to solve problems by identifying important quantities and mapping their relationship and by stating and using logical assumptions.

Student Just Entering  
**Standard Exceeded**  
Should Be Able To:

- Analyze and interpret the context of an unfamiliar situation for problems of increasing complexity.
- Begin to solve problems optimally.
- Construct multiple plausible solutions and approaches.

# High School: Communicating Reasoning

Student Just Entering  
**Standard Nearly Met**  
Should Be Able To:

- Find and identify the flaw in an argument.

Student Just Entering  
**Standard Met**  
Should Be Able To:

- Use stated assumptions, definitions, and previously established results and examples to identify and repair a flawed argument.
- Use previous information to support his or her own reasoning on a routine problem.

Student Just Entering  
**Standard Exceeded**  
Should Be Able To:

- Begin to construct chains of logic about abstract concepts autonomously.