

TOPICS/SUBTOPICS	NYSED SKILLS	ASSESSMENT
<p><b><u>Operations and Properties</u></b></p> <ul style="list-style-type: none"> <li>• Operations in Arithmetic</li> <li>• Bases, Exponents and Powers</li> <li>• Order of Operations</li> <li>• Properties of Operations</li> <li>• Operations with Sets</li> </ul>	<ul style="list-style-type: none"> <li>• Properties of real numbers including closure, commutative, associative, and distributive properties, and inverse and identity elements</li> <li>• Rational approximations of irrational numbers</li> <li>• Venn Diagrams</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher -made Tests</li> </ul>
<p><b><u>Algebraic Expressions, Geometric Formulas and Open Sentences</u></b></p> <ul style="list-style-type: none"> <li>• Algebraic terms and vocabulary</li> <li>• Evaluating algebraic expressions</li> <li>• Translating verbal sentences into formulas</li> <li>• Formulas for perimeter and area of polygons</li> <li>• Formulas for circumference and Area of a circumference</li> <li>• Reasoning with perimeter, area and shade</li> <li>• Formulas for Volume of a Solid</li> </ul>	<ul style="list-style-type: none"> <li>• Use of variables/Algebraic representations</li> <li>• Perimeter of Polygons and Circumference of Circles</li> <li>• Study of solids: classification of prism, rectangular solid, pyramid, right circular cylinder, cone and sphere</li> <li>• Area of Polygons and Circles</li> <li>• Volume of Solids</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher-made Tests</li> </ul>
<p><b><u>Signed Numbers</u></b></p> <ul style="list-style-type: none"> <li>• The Absolute of a Number</li> <li>• Evaluating algebraic expressions using signed numbers</li> </ul>	<ul style="list-style-type: none"> <li>• Signed numbers</li> <li>• Use of variables: order of operations and evaluating algebraic expressions and formulas</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher-made Tests</li> </ul>

TOPICS/SUBTOPICS	NYSED SKILLS	ASSESSMENT
<p><b><u>Culminative Problem Solving</u></b></p> <ul style="list-style-type: none"> <li>• A multitude of problems are integrated throughout the course</li> </ul>	<ul style="list-style-type: none"> <li>• Graphic and algebraic solutions of linear and quadratic functions in the solution of problems</li> <li>• Determine and model real-life situations with appropriate functions</li> <li>• Translate linear and quadratic functions, systems of equations, inequalities and quadratic linear pairs between representations that are verbal descriptions, tables, equations or graphs</li> <li>• Converting to equivalent measurements within metric and English measurement systems</li> <li>• Direct and indirect measure</li> <li>• Error of measurement and its consequences on calculation of perimeter of polygons and circumference of circles</li> <li>• Percent of error in measurements</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher-made Tests</li> </ul>
<p><b><u>Operations With Algebraic Expressions</u></b></p> <ul style="list-style-type: none"> <li>• Adding algebraic expressions</li> <li>• Subtracting algebraic expressions</li> <li>• Multiplying powers that have the same base</li> <li>• Multiplying by a monomial</li> <li>• Multiplying polynomials</li> <li>• Dividing powers that have the same base</li> <li>• Powers with zero and negative exponents</li> <li>• Using scientific notation</li> <li>• Dividing by a monomial</li> <li>• Dividing by a Polynomial</li> </ul>	<ul style="list-style-type: none"> <li>• Simplification of algebraic expressions</li> <li>• Addition and subtraction of polynomials</li> <li>• Multiplication of polynomials: powers, products of monomials and binomials</li> <li>• Division of polynomials by monomials</li> <li>• Scientific notation</li> <li>• Powers: positive, zero and negative exponents</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher-made Tests</li> </ul>

TOPICS/SUBTOPICS	NYSED SKILLS	ASSESSMENT
<p><b><u>First-Degree Equations and Inequalities in One Variable</u></b></p> <ul style="list-style-type: none"><li>• Simplifying each side of an equation before solving</li><li>• Solving equations that have the variable in both members</li><li>• Consecutive-Integer problems</li><li>• Solving for a variable in a formula</li><li>• Perimeter problems</li><li>• Solving for a variable in terms of another variable</li><li>• Transforming formulas</li><li>• Properties of inequalities</li><li>• Finding and graphing the Solution Set of an Inequality</li><li>• Using inequalities to solve problems</li></ul>	<ul style="list-style-type: none"><li>• Formulas and literal equations</li><li>• Inequalities</li><li>• Techniques for solving equations and inequalities</li><li>• Solve linear inequalities</li></ul>	<ul style="list-style-type: none"><li>• Teacher-made tests</li></ul>

TOPICS/SUBTOPICS	NYSED SKILLS	ASSESSMENT
<p><b><u>Angle Measure in Geometry</u></b></p> <ul style="list-style-type: none"> <li>• Points, lines and planes</li> <li>• Angles, angle measures and perpendicular lines</li> <li>• Pairs of angles</li> <li>• Triangles and angles</li> <li>• Triangles with congruent angles</li> </ul>	<ul style="list-style-type: none"> <li>• Study of triangles: classifications of scalene, isosceles, equilateral, acute, obtuse and right; triangular inequality; sum of the measures of angles of a triangle; exterior angle of a triangle, base angles of an isosceles triangle</li> <li>• Undefined terms: <i>point</i>, <i>line</i> and <i>plane</i></li> <li>• Parallel and intersecting lines and perpendicular lines</li> <li>• Angles: degree measure, right, acute, obtuse, straight, supplementary, complementary, vertical, alternate interior and exteriors and corresponding</li> <li>• Sum of interior and exterior angles of a polygon</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher-made Tests</li> </ul>
<p><b><u>Congruence and Transformations</u></b></p> <ul style="list-style-type: none"> <li>• Geometric figures</li> <li>• Congruent triangles</li> <li>• Quadrilaterals</li> <li>• Line Reflections and Line Symmetry</li> <li>• Point Reflections and Point Symmetry</li> <li>• Translations</li> <li>• Rotations</li> </ul>	<ul style="list-style-type: none"> <li>• Simple closed curves: polygons and circles</li> <li>• Study of quadrilaterals: classification and properties of parallelograms, rectangles, rhombi, squares and trapezoids</li> <li>• Intuitive notions of line reflection, translation, rotation and dilation</li> <li>• Line and point symmetry</li> <li>• Reflection in a line and in a point; translations</li> <li>• Comparison of volumes of similar solids</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher-made Tests</li> </ul>

TOPICS/SUBTOPICS	NYSED SKILLS	ASSESSMENT
<p><b><u>Ratio and Proportion</u></b></p> <ul style="list-style-type: none"> <li>• Ratio</li> <li>• Using a ratio to express a rate</li> <li>• Verbal problems involving ratio</li> <li>• Proportion</li> <li>• Direct variation</li> <li>• Percent and percentage problems</li> <li>• Similar polygons</li> <li>• Similar triangles</li> <li>• Dilations</li> <li>• Ratio of perimeters and ratio of areas of similar polygons</li> </ul>	<ul style="list-style-type: none"> <li>• Ratio</li> <li>• Proportion</li> <li>• Scale drawings</li> <li>• Percent</li> <li>• Similar figures</li> <li>• Similar polygons: ratio of perimeters and areas</li> <li>• Direct variation</li> <li>• Comparison of triangles: congruence and similarity</li> <li>• Dilations</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher-made Tests</li> </ul>
<p><b><u>Graphing Linear Functions and Equations</u></b></p> <ul style="list-style-type: none"> <li>• Solutions of open sentences in two variables</li> <li>• Graphing linear functions using their solutions</li> <li>• Graphing a line parallel of an axis</li> <li>• The slope of a line</li> <li>• The slope-intercept form of a linear equation</li> <li>• Graphing linear functions using their slopes</li> <li>• Writing an equation of a line</li> <li>• Graphing Direct Variation</li> <li>• Graphing first-degree inequalities in two variables</li> </ul>	<ul style="list-style-type: none"> <li>• Graphs of linear relations: slope and intercept</li> <li>• Graphic solution of systems of linear equations and inequalities</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher-made Tests</li> </ul>

TOPICS/SUBTOPICS	NYSED SKILLS	ASSESSMENT
<p><b><u>Systems of Linear Open Sentences in Two Variables</u></b></p> <ul style="list-style-type: none"> <li>• Using a graph to solve a system of linear equations</li> <li>• Using addition to solve a system of linear equations</li> <li>• Using substitution to solve a system of linear equations</li> <li>• Using systems of equations to solve verbal problems</li> <li>• Graphing the solution set of a system of inequalities</li> </ul>	<ul style="list-style-type: none"> <li>• Algebraic solution of systems of linear equations, inequalities, substitution method and addition-subtraction method</li> <li>• Solve systems of linear equation and inequalities</li> <li>• Systems of linear equations and inequalities</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher-made Tests</li> </ul>
<p><b><u>Statistics</u></b></p> <ul style="list-style-type: none"> <li>• Collecting data</li> <li>• Organizing data</li> <li>• The Histogram</li> <li>• The Mean, the Median and the Mode</li> <li>• Measures of Central Tendency and Grouped Data</li> <li>• Quartiles, Percentiles and Cumulative Frequency</li> </ul>	<ul style="list-style-type: none"> <li>• Collecting and organizing data: sampling, tally, chart, frequency table, circle graphs, broken line graphs, frequency histogram, box and whisker plots, scatter ;plots, stem and leaf plots, and cumulative frequency histogram</li> <li>• Measures of central tendency: mean, median, mode</li> <li>• Quartiles and percentiles</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher-made Tests</li> </ul>

TOPICS/SUBTOPICS	NYSED SKILLS	ASSESSMENT
<p><b><u>Special Products and Factors</u></b></p> <ul style="list-style-type: none"> <li>• Factors and factoring</li> <li>• Common monomial factors</li> <li>• The square of a monomial</li> <li>• Multiplying the sum and difference of two terms</li> <li>• Factoring the difference of two squares</li> <li>• Multiplying binomials</li> <li>• Factoring trinomials</li> <li>• Factoring a polynomial completely</li> </ul>	<ul style="list-style-type: none"> <li>• Distributive field property as related to factoring</li> <li>• Prime factorization</li> <li>• Factoring: common monomials, binomial factors of trinomials</li> <li>• Difference of two squares</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher-made Tests</li> </ul>
<p><b><u>Algebraic Fractions, and Equations and Inequalities Involving Fractions</u></b></p> <ul style="list-style-type: none"> <li>• The meaning of an algebraic fraction</li> <li>• Reducing fractions to lowest terms</li> <li>• Multiplying fractions</li> <li>• Dividing Fractions</li> <li>• Adding or Subtracting fractions that have the same denominator</li> <li>• Adding or Subtracting fractions that have different denominators</li> <li>• Solving equations containing fractional co-efficients</li> <li>• Solving inequalities containing fractional co-efficients</li> <li>• Solving fractional equations</li> <li>• Equations and formulas involving several variables</li> </ul>	<ul style="list-style-type: none"> <li>• Simplification of fractions; combining like terms and fractions with like denominators; equivalent fractions with unlike denominators and multiplication of fractions</li> <li>• Division of fractions</li> <li>• Solve linear equations with integral, fraction or decimal co-efficients</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher-made Tests</li> </ul>

TOPICS/SUBTOPICS	NYSED SKILLS	ASSESSMENT
<p><b><u>Operations with Radicals</u></b></p> <ul style="list-style-type: none"> <li>• Radicals and the rational numbers</li> <li>• Radicals and the irrational numbers</li> <li>• Finding the principal square root of a monomial</li> <li>• Simplifying a square-root radical</li> <li>• Addition and subtraction of radicals</li> <li>• Multiplication of square-root radicals</li> <li>• Division of square-root radicals</li> </ul>	<ul style="list-style-type: none"> <li>• Rational approximations of irrational numbers</li> <li>• Operations with radicals: simplification, multiplication and division, and addition and subtraction</li> <li>• Real numbers including irrational numbers such as non-repeating decimals, irrational roots and pi</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher-made Tests</li> </ul>
<p><b><u>Quadratic Equations</u></b></p> <ul style="list-style-type: none"> <li>• The standard form of a quadratic equation</li> <li>• Solving a quadratic equation by factoring</li> <li>• Solving incomplete quadratic equations</li> <li>• The Theorem of Pythagoras</li> <li>• Using quadratic equations to solve problems</li> </ul>	<ul style="list-style-type: none"> <li>• Pythagorean Theorem</li> <li>• Distributive and associative field properties as related to the solution of quadratic equations</li> <li>• Techniques for solving factorable quadratic equations</li> <li>• Solve factorable quadratic equations</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher-made Tests</li> </ul>
<p><b><u>Logic</u></b></p> <ul style="list-style-type: none"> <li>• Sentences, statements and truth values</li> <li>• Negations and symbols</li> <li>• Conjunctions</li> <li>• Disjunctions</li> <li>• Conditionals</li> <li>• Compound statements and truth values</li> <li>• Compound sentences and truth tables</li> <li>• Biconditionals</li> <li>• Inverses, converses and contrapositives</li> <li>• Drawing conclusions</li> </ul>	<ul style="list-style-type: none"> <li>• Truth value of compound sentences (conjunction, disjunction, conditional, related conditionals such as converse, inverse and contrapositive and biconditional)</li> <li>• Truth value of simple sentences (closed sentences, open sentences with replacement set and solution set, negations)</li> <li>• Truth value compound sentences</li> </ul>	<ul style="list-style-type: none"> <li>• Teacher-made Tests</li> </ul>



TOPICS/SUBTOPICS	NYSED SKILLS	ASSESSMENT
<p><b><u>Probability</u></b></p> <ul style="list-style-type: none"> <li>• Empirical probability</li> <li>• Theoretical probability</li> <li>• Evaluating simple probabilities</li> <li>• The probability of (A and B)</li> <li>• The Probability of (A or B)</li> <li>• The probability of (not A); probability as a sum</li> <li>• The counting principle and sample spaces</li> <li>• Probabilities and the counting principle</li> <li>• Probabilities with two or more activities</li> <li>• Permutations</li> <li>• More about permutations</li> <li>• Probability with replacement; probability with replacement</li> </ul>	<ul style="list-style-type: none"> <li>• Sample spaces: list of ordered pairs of n-tuples, tree diagrams</li> <li>• Theoretical vs empirical probability</li> <li>• Single and compound events</li> <li>• Problems involving <i>and</i> and <i>or</i></li> <li>• Probability of the complement of an event</li> <li>• Mutually exclusive and independent events</li> <li>• Counting principle</li> <li>• Sample space</li> <li>• Probability distribution</li> <li>• Probability of the complement of an event</li> <li>• Factorial notation</li> <li>• Permutations: <math>nP_n</math> and <math>nP_c</math></li> </ul>	<p>Teacher-made Tests</p>