

INTEGRATED MATH II (continued)

Students will:

- Factor perfect square trinomials, difference of squares, and trinomials
- Interpret and construct stem-and-leaf plots, circle graphs, frequency tables, pictographs, bar and line graphs, scatter plots, box-and-whisker plots and histograms
- Find the probabilities of dependent and independent events

PRE-CALCULUS

Students will:

- Solve linear, quadratic and polynomial equations algebraically and graphically
- Solve linear, quadratic and polynomial inequalities algebraically and graphically
- Explore the properties of functions and inverses
- Recognize and apply the laws of exponential and logarithmic functions
- Apply the properties of trigonometric functions to evaluate trigonometric expressions
- Solve trigonometric equations and apply to real world situations
- Use technology to provide alternative methods for solving problems
- Explore trigonometry with respect to the unit circle as well as right triangles
- Recognize and apply trigonometric identities
- Derive and apply trigonometric addition formulas



OUR MISSION

The Pentucket Regional School District seeks to inspire its students with a love of learning and to enable them to develop their academic potential and individual talents in an atmosphere that cultivates independent thinking. We will prepare our students to develop respect for others and to be responsible citizens of a global society.

OUR VALUES

Respect
Accountability
Integrity
Opportunity

Schools in the Pentucket Regional School District are dedicated to providing an up-to-date and challenging curriculum at each grade level. These curriculum brochures represent an overview of the comprehensive competencies at each grade level and in each subject and/or specialist area. Students and parents are able to review the rich curriculum offered in our District.

Pentucket Regional School District does not discriminate on the basis of race, color, religion, national origin, gender, sexual orientation, disability, or age.



Dr. Frederick N. Sweetsir School
104 Church Street
Merrimac, MA 01860
Tel: 978-346-8319/Fax: 978-346-7844
Grades Pre K-2

Helen R. Donaghue School
2 Union Street Extension
Merrimac, MA 01860
Tel: 978-346-8921/Fax: 978-346-7839
Grades 3-6

Dr. Elmer S. Bagnall School
253 School Street
Groveland, MA 01834
Tel: 978-372-8856/Fax: 978-521-8956
Grades Pre K-6

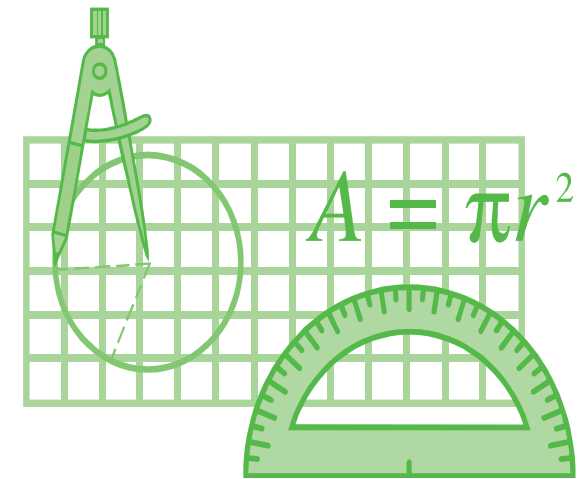
Dr. John C. Page School
694 Main Street
West Newbury, MA 01985
Tel: 978-363-2671/Fax: 978-363-2234
Grades Pre K-6

Pentucket Regional Middle School
20 Main Street
West Newbury, MA 01985
Tel: 978-363-2957/Fax: 978-363-2720
Grades 7-8

Pentucket Regional High School
24 Main Street
West Newbury, MA 01985
Tel: 978-363-5507/Fax: 978-363-2730
Grades 9-12

Central Services
Office of the Superintendent
Office of the School Committee
22 Main Street
West Newbury, MA 01985
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Visit us online @ www.prsd.org



MATHEMATICS CURRICULUM GRADES 9-12



PENTUCKET REGIONAL SCHOOL DISTRICT

Groveland
Merrimac
West Newbury

Pentucket ... a culture of continuous learning

INTERMEDIATE ALGEBRA

Students will:

- Find products and quotients of monomials
- Add, subtract, multiply, and divide polynomial expressions
- Find products of special binomials
- Identify greatest common factors of monomials
- Factor polynomials
- Solve equations using zero product property
- Graph and solve quadratic equations
- Graph exponential functions
- Solve problems involving exponential growth and exponential decay
- Interpret and identify graphs of exponential functions
- Recognize and extend geometric sequences
- Simplify and perform operations of radical expressions
- Solve radical equations
- Use similar triangles and trigonometric ratios
- Solve problems involving inverse variation
- Simplify, add, subtract, multiply, and divide rational expressions
- Simplify mixed expressions and complex fractions



ALGEBRA II

Students will:

- Explore and analyze relations and functions
- Recognize, graph and apply linear functions
- Add, subtract and multiply matrices and solve matrix equations algebraically as well as using technology
- Use systems of linear equations to solve and apply to real world situations
- Explore and analyze polynomial functions and equations
- Perform operations with complex numbers
- Recognize and apply properties of exponential and logarithmic functions
- Understand properties of rational functions and equations
- Use right triangles to develop an understanding of unit circle trigonometry
- Use technology to explore conic sections

CALCULUS

Students will:

- Calculate and estimate limits of functions algebraically, graphically, numerically, and verbally
- Understand continuity as a property of functions using limits
- Apply derivatives to elementary and transcendental functions
- Solve a variety of applications of derivatives using algebraic, graphic, and numeric techniques
- Compute derivatives algebraically and graphically
- Use properties of the definite integral to solve various models from physical, biological, and economic situations
- Use the integral in specific applications including rate of change to give accumulated change, finding the area of a region, the volume of a solid, the average value of a function, and the distance traveled by a particle
- Learn techniques of anti differentiation including substitution of variables
- Solve separable differential equations and use them in modeling
- Use Reimann sums and Trapezoidal sums to approximate definite integrals of functions represented algebraically, graphically, and by tables of values



COLLEGE ALGEBRA

Students will:

- Examine linear and quadratic equations
- Use word problem models to improve understanding of linear and quadratic equations
- Use the graphing calculator to study and analyze linear equations
- Recognize functions in general terms including the graphs of functions and the algebra of functions
- Solve polynomial and rational functions algebraically and graphically

COLLEGE ALGEBRA (continued)

Students will:

- Use word problem models to better understand polynomial and rational functions
- Explore exponential and logarithmic functions graphically
- Use word problems to further understand the exponential model
- Solve systems of linear equations using the graphing calculators
- Explore linear programming

GEOMETRY

Students will:

- State relationships between points, lines, segments and planes
- Recognize special types of polygons and their properties
- Use deductive and inductive reasoning to write proofs
- Use a variety of methods to perform constructions
- Develop concepts of congruence and similarity
- Use the properties of parallel lines
- Understand the relationships between chords, arcs, secants, tangents, and angle measures within circles
- Understand the Pythagorean theorem and apply it to simplifying radicals and classifying triangles
- Apply distance formula and Pythagorean triples
- Be able to find the trigonometric ratios of an acute angle of a right triangle
- Solve special right triangles
- Be able to solve problems using the Law of Sines and Law of Cosines
- Find the perimeter and area of common geometric figures
- Find surface area and volume of common solids
- Identify and draw translations, reflections, rotations, and lines of symmetry



INTEGRATED MATH I

Students will:

- Find and interpret measures of central tendency: mean, median, mode, range
- Describe and complete patterns
- Perform the four operations using positive and negative numbers and order of operations
- Understand equations and their solutions
- Write an equation and graph a line using the slope-intercept and point-slope forms
- Solve and graph inequalities and problems using polynomials
- Use the properties of parallel lines
- Use Inductive and deductive reasoning
- Identify and classify geometric figures and polygons
- Use the Pythagorean theorem to solve problems
- Use the distance formula to find the distance between two points
- Identify and draw translations, reflections and lines of symmetry

INTEGRATED MATH II

Students will:

- Find the measures of interior and exterior angles of regular polygons
- Establish congruence between two triangles
- Apply properties of parallelograms to find missing lengths and measures
- Find measures of central and inscribed angles and measures of angles formed by intersecting secants and tangents
- Determine the surface area and volume of common solids.
- Determine the effect of changing an attribute of a figure on its surface area or volume
- Identify the rule in an iterative process

