

**21<sup>st</sup> Century Learning Expectations:** Read, write, and communicate effectively; work independently and collaboratively; identify, analyze and solve problems; gather, evaluate, and apply information from a variety of sources

September		October	November	December	January	
<b>Content</b>	The Number System Geometry	Expressions and Equations	Expressions and Equations (cont.) Functions	Functions	Functions	<b>Content</b>
<b>Standards</b>	8.NS.1, 8.NS.2, 8.G.6, 8.G.7	8.EE.1, 8.EE.2, 8.EE.3, 8.EE.4, 8.EE.7	8.EE.5, 8.EE.6	8.F.1, 8.F.2, 8.F.4, 8.F.5	8.EE.8, 8.F.3	<b>Standards</b>
<b>Skills</b>	<p><b>Students will be able to:</b></p> <ul style="list-style-type: none"> <li>- Know that there are rational and irrational numbers.</li> <li>- Understand and apply the Pythagorean Theorem</li> </ul>	<p><b>Students will be able to:</b></p> <ul style="list-style-type: none"> <li>- Simplify radicals and integer exponents.</li> <li>- Solve equations.</li> <li>- Convert numbers into and from scientific notation and combine numbers in scientific notation.</li> </ul>	<p><b>Students will be able to:</b></p> <ul style="list-style-type: none"> <li>- Understand the connections between proportional relationships.</li> <li>- Define, evaluate, and compare functions.</li> </ul>	<p><b>Students will be able to:</b></p> <ul style="list-style-type: none"> <li>- Use functions to model relationships between quantities.</li> <li>- Construct a function to model a linear relationship between two quantities.</li> <li>- Determine the rate of change, slope.</li> </ul>	<p><b>Students will be able to:</b></p> <ul style="list-style-type: none"> <li>- Derive the equation <math>y = mx</math> for a line through the origin.</li> <li>- Derive the equation <math>y = mx + b</math> for a line intercepting the vertical axis at <math>b</math>.</li> <li>- Analyze and solve linear equations and pairs of simultaneous linear equations</li> </ul>	<b>Skills</b>
<b>Assessment</b>	Summer assignment Hw Classwork Quizzes Tests Individual white board work Khan Academy assignments Practice MCAS Open Response	Hw Classwork Quizzes Tests Individual white board work Khan Academy assignments	Hw Classwork Quizzes Tests Individual white board work Khan Academy assignments Puzzle on solving 1 and 2 step equations, including proportions	Hw Classwork Quizzes Tests Individual white board work Khan Academy assignments Bull's Eye puzzle	Hw Classwork Quizzes Tests Individual white board work Khan Academy assignments Puzzle on matching linear equations, graphs and descriptions	<b>Assessment</b>
<b>Resources</b>	Algebra I textbook Graphing calculator	Algebra I textbook Graphing calculator Khan Academy	Algebra I textbook Graphing calculator Khan academy	Algebra I textbook Graphing calculator	Algebra I textbook Graphing calculator Khan Academy	<b>Resources</b>

<b>Essential Questions</b>	<p>What is the difference between rational and irrational numbers?                  How can you determine if the lengths of a triangle form a right triangle?</p>	<p>What is simplest form of expressions using exponents and radicals?                  How do you find solutions to equations?</p>	<p>How do you write percent equations?                  What is a function?                  How do you identify a function from a table or a graph?</p>	<p>How can the slope of a line be interpreted in real world situations?                  How do you write linear equations and can you identify their different forms?</p>	<p>How do you write an equation to represent a line?                  What is the slope and y-intercept?                  How do you differentiate between parallel and perpendicular lines?</p>	<b>Essential Questions</b>
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<b>February</b>		<b>March</b>	<b>April</b>	<b>May</b>	<b>June</b>
<b>Content</b>	Functions (cont.)	Statistics and Probability Geometry	Statistics and Probability Geometry	Geometry	Expressions and Equations
<b>Standards</b>	8.EE.8	8.F.2, 8.G.9, 8.SP.1, 8.SP.2	8.G.9, 8.SP.3, 8.SP.4	8.G.1, 8.G.2, 8.G.3, 8.G.4, 8.G.5	A.SSE.2, A.APR.1
<b>Skills</b>	<p><b>Students will be able to:</b></p> <ul style="list-style-type: none"> <li>- Graph absolute value equations.</li> <li>- Graph quadratic equations.</li> <li>- Graph and find solutions of systems of equations and inequalities.</li> </ul>	<p><b>Students will be able to:</b></p> <ul style="list-style-type: none"> <li>- Construct and interpret scatter plots for data to investigate patterns.</li> <li>- Create a line that informally fits a straight line for scatter plots.</li> <li>- Apply formulas of area, surface area to real world mathematical problems.</li> </ul>	<p><b>Students will be able to:</b></p> <ul style="list-style-type: none"> <li>- Apply formulas of volume to real world mathematical problems.</li> <li>- Understand probability and measures of central tendency.</li> </ul>	<p><b>Students will be able to:</b></p> <ul style="list-style-type: none"> <li>- Know the properties of rotations, reflections, and translations.</li> <li>- Use informal arguments to establish facts about the angle sum and exterior angle of triangles and the angle-angle criterion for similarity of triangles.</li> <li>- Understand parallel lines are cut by a transversal, creating special angle pairs.</li> </ul>	<p><b>Students will be able to:</b></p> <ul style="list-style-type: none"> <li>- Identify and apply special patterns in multiplying and factoring polynomials.</li> </ul>
<b>Assessment</b>	Hw Classwork Quizzes Tests Individual white board work Khan Academy assignments Mock MCAS	Hw Classwork Quizzes Tests Individual white board work Khan Academy assignments Graphing Calculator lab on scatterplots and line of best fit	Hw Classwork Quizzes Tests Individual white board work Khan Academy assignments MCAS Open Response and peer/self-assessment	Hw Classwork Quizzes Tests Individual white board work Khan Academy assignments	Hw Classwork Quizzes Tests Individual white board work Khan Academy assignments Project – Rollercoaster Road Trip
<b>Resources</b>	Text book Graphing calculator Khan Academy	Text book Graphing calculator Khan Academy	Text book Graphing calculator Khan Academy	Text book Graphing calculator Khan Academy	Text book Graphing calculator Khan Academy Computer research for project

<b>Essential Questions</b>	<p>What is a solution of a system graphically?                  What do quadratic and absolute value equations look like graphically?                  What methods are used for solving systems of equations?</p>	<p>Can you give examples of real life situations that can demonstrate various correlations?                  Can you correctly select and apply geometric formulas to find solutions to problems?</p>	<p>Can you correctly select and apply geometric formulas to find solutions to problems?                  Can you accurately create a stem and leaf plot?                  Which measure of central tendency applies best to a real world situation?</p>	<p>Which transformation has been preformed?                  What is the missing angle of the triangle?</p>	<p>Can you factor various forms of polynomials?                  Can you distinguish between special cases of polynomials?</p>	<b>Essential</b>
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