



**Common Core State Standards (CCSS)**  
**MATHEMATICS**  
**DOMAINS AND CLUSTERS**  
**GRADES 9-12**

**AT – A – GLANCE**

# Mathematics Common Core State Standards High School

This table shows the domains and clusters in each conceptual category

<b>Number and Quantity</b>	<b>The Real Number System</b> <ul style="list-style-type: none"> <li>Extend the properties of exponents to rational exponents.</li> <li>Use properties of rational and irrational numbers.</li> </ul>	<b>Quantities</b> <ul style="list-style-type: none"> <li>Reason quantitatively and use units to solve problems.</li> </ul>	<b>The Complex Number System</b> <ul style="list-style-type: none"> <li>Perform arithmetic operations with complex numbers.</li> <li>Represent complex numbers and their operations on the complex plane.</li> <li>Use complex numbers in polynomial identities and equations.</li> </ul>	<b>Vector and Matrix Quantities</b> <ul style="list-style-type: none"> <li>Represent and model with vector quantities.</li> <li>Perform operations on vectors.</li> <li>Perform operations on matrices and use matrices in applications.</li> </ul>		
<b>Algebra</b>	<b>Seeing Structure in Expressions</b> <ul style="list-style-type: none"> <li>Interpret the structure of expressions.</li> <li>Write expressions in equivalent forms to solve problems.</li> </ul>	<b>Arithmetic with Polynomials and Rational Expressions</b> <ul style="list-style-type: none"> <li>Perform arithmetic operations on polynomials.</li> <li>Understand the relationship between zeros and factors of polynomials.</li> <li>Use polynomial identities to solve problems.</li> <li>Rewrite rational expressions.</li> </ul>	<b>Creating Equations</b> <ul style="list-style-type: none"> <li>Create equations that describe numbers or relationships.</li> </ul>	<b>Reasoning with Equations and Inequalities</b> <ul style="list-style-type: none"> <li>Understand solving equations as a process of reasoning and explain the reasoning.</li> <li>Solve equations and inequalities in one variable.</li> <li>Solve systems of equations.</li> <li>Represent and solve equations and inequalities graphically.</li> </ul>		
<b>Functions</b>	<b>Interpreting Functions</b> <ul style="list-style-type: none"> <li>Understand the concept of a function and use function notation.</li> <li>Interpret functions that arise in applications in terms of the context.</li> <li>Analyze functions using different representations.</li> </ul>	<b>Building Functions</b> <ul style="list-style-type: none"> <li>Build a function that models a relationship between two quantities.</li> <li>Build new functions from existing functions.</li> </ul>	<b>Linear, Quadratic, and Exponential Models</b> <ul style="list-style-type: none"> <li>Construct and compare linear, quadratic, and exponential models and solve problems.</li> <li>Interpret expressions for functions in terms of the situation they model.</li> </ul>	<b>Trigonometric Functions</b> <ul style="list-style-type: none"> <li>Extend the domain of trigonometric functions using the unit circle.</li> <li>Model periodic phenomena with trigonometric functions.</li> <li>Prove and apply trigonometric identities.</li> </ul>		
<b>Geometry</b>	<b>Congruence</b> <ul style="list-style-type: none"> <li>Experiment with transformation in the plane.</li> <li>Understand congruence in terms of rigid motions.</li> <li>Prove geometric theorems.</li> <li>Make geometric constructions.</li> </ul>	<b>Similarity, Right Triangles, and Trigonometry</b> <ul style="list-style-type: none"> <li>Understand similarity in terms of similarity transformations.</li> <li>Prove theorems involving similarity.</li> <li>Define trigonometric ratios and solve problems involving right triangles.</li> <li>Apply trigonometry to general triangles.</li> </ul>	<b>Circles</b> <ul style="list-style-type: none"> <li>Understand and apply theorems about circles</li> <li>Find arc lengths and areas of sectors of circles.</li> </ul>	<b>Expressing Geometric Properties with Equations</b> <ul style="list-style-type: none"> <li>Translate between the geometric description and the equation for a conic section.</li> <li>Use coordinates to prove simple geometric theorems algebraically.</li> </ul>	<b>Geometric Measurement and Dimension</b> <ul style="list-style-type: none"> <li>Explain volume formulas and use them to solve problems.</li> <li>Visualize relationships between two-dimensional and three-dimensional objects.</li> </ul>	<b>Modeling with Geometry</b> <ul style="list-style-type: none"> <li>Apply geometric concepts in modeling situations.</li> </ul>
<b>Statistics and Probability</b>	<b>Interpreting Categorical and Quantitative Data</b> <ul style="list-style-type: none"> <li>Summarize, represent, and interpret data on a single count or measurement variable.</li> <li>Summarize represent and interpret data on two categorical and quantitative variables.</li> <li>Interpret linear models.</li> </ul>	<b>Making Inferences and Justifying Conclusions</b> <ul style="list-style-type: none"> <li>Understand and evaluate random processes underlying statistical experiments.</li> <li>Make inferences and justify conclusions from sample surveys, experiments and observational studies.</li> </ul>	<b>Conditional Probability and the Rules of Probability</b> <ul style="list-style-type: none"> <li>Understand independence and conditional probability and use them to interpret data.</li> <li>Use the rules of probability to compute probabilities of compound events in a uniform probability model.</li> </ul>	<b>Using Probability to Make Decisions</b> <ul style="list-style-type: none"> <li>Calculate expected values and use them to solve problems.</li> <li>Use probability to evaluate outcomes of decisions.</li> </ul>		