

# Major Work of Algebra II

High School	
Major Clusters	Supporting/Additional Clusters
<p><b>The Real Number System</b></p> <ul style="list-style-type: none"> <li>• Extend the properties of exponents to rational exponents.</li> </ul> <p><b>Quantities</b></p> <ul style="list-style-type: none"> <li>• Reason quantitatively and use units to solve problems.</li> </ul> <p><b>Seeing the Structure in Expressions</b></p> <ul style="list-style-type: none"> <li>• Interpret the structure of expressions.</li> <li>• Write expressions in equivalent forms to solve problems.</li> </ul> <p><b>Arithmetic with Polynomials and Rational Expressions</b></p> <ul style="list-style-type: none"> <li>• Understand the relationship between zeros and factors of polynomials.</li> </ul> <p><b>Creating Equations</b></p> <ul style="list-style-type: none"> <li>• Create equations that describe numbers or relationships.</li> </ul> <p><b>Reasoning with Equations and Inequalities</b></p> <ul style="list-style-type: none"> <li>• Understand solving equations as a process of reasoning and explain the reasoning.</li> <li>• Represent and solve equations and inequalities graphically.</li> </ul>	<p><b>The Real Number System</b></p> <ul style="list-style-type: none"> <li>• Use properties of rational and irrational numbers.</li> </ul> <p><b>The Complex Number System</b></p> <ul style="list-style-type: none"> <li>• Perform arithmetic operations with complex numbers.</li> <li>• Use complex numbers in polynomial identities and equations.</li> </ul> <p><b>Arithmetic with Polynomials and Rational Expressions</b></p> <ul style="list-style-type: none"> <li>• Perform arithmetic operations on polynomials.</li> <li>• Use polynomial identities to solve problems.</li> <li>• Rewrite rational expressions.</li> </ul> <p><b>Reasoning with Equations and Inequalities</b></p> <ul style="list-style-type: none"> <li>• Solve equations and inequalities in one variable.</li> <li>• Solve systems of equations.</li> </ul> <p><b>Building Functions</b></p> <ul style="list-style-type: none"> <li>• Build new functions from existing functions.</li> </ul> <p><b>Trigonometric Functions</b></p> <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>

**Interpreting Functions**

- Understand the concept of a function and understand function notation.
- Interpret functions that arise in applications in terms of the context.
- Analyze functions using different representations.

**Building Functions**

- Build a function that models a relationship between two quantities.

**Linear, Quadratic and Exponential Models**

- Construct and compare linear, quadratic, and exponential models and solve problems.

**Interpreting Categorical and Quantitative Data**

- Summarize, represent, and interpret data on a single count or measurement variable.

**Making Inferences and Justifying Conclusions**

- Make inferences and justify conclusions from sample surveys, experiments, and observational studies.

**Making Inferences and Justifying Conclusions**

- Understand and evaluate random processes underlying statistical experiments.