

Campbell County Schools
Algebra IB
4th Nine Weeks

Mathematical Practices:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Common Core Coding Explanation:

Conceptual Category Cluster Standard #



Domains Examples:

- SSE- Seeing Structure in Expressions
- REI- Reasoning with Equations & Inequalities
- CED- Creating Equations that Describe

Domain	Common Core State Standards	Aligned Activities	Aligned Textbook Lessons
Algebra: Seeing Structure in Expressions	<p>Write expressions in equivalent forms to solve</p> <p>A.SSE.B.3. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. ★</p> <p>a) A.SSE.B.3a. Factor a quadratic expression to reveal the zeros of the function it defines.</p> <p>b) A.SSE.B.3b. Complete the square in a quadratic expression to reveal the</p>		

	maximum or minimum value of the function it defines.		
Algebra: Arithmetic with Polynomials and Rational Expressions	<p>Solve equations and inequalities in one variable.</p> <p>A.REI.B.4. Solve quadratic equations in one variable.</p> <p>a) A.REI.B.4a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.</p> <p>b) A.REI.B.4b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.</p>		
Algebra: Creating Equations	<p>Create equations that describe numbers or relationships.</p> <p>A.CED.A.1. Create equations and inequalities in one variable and use them to solve problems. <i>Include equations arising from linear and quadratic functions, and simple rational and exponential functions.</i></p>		
Algebra: Reasoning with Equations and Inequalities	<p>Solve systems of equations.</p> <p>A.REI.C.7. Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. <i>For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.</i></p>		
Functions: Interpreting Functions	<p>Interpret functions in applications in terms of a context.</p> <p>F.IF.B.4. For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. <i>Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.</i> ★</p> <p>F.IF.B.5. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.</p>		
Functions: Interpreting Functions	<p>Analyze functions using different representations.</p> <p>F.IF.C.7. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. ★</p>		

	<p>a) F.IF.C.7a. Graph linear and quadratic functions and show intercepts, maxima, and minima.</p> <p>b) F.IF.C.7b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.</p> <p>F.IF.C.8. Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.</p> <p>a) F.IF.C.8a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.</p> <p>F.IF.C.9. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). <i>For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.</i></p>		
<p>Functions: Linear, Quadratic, and Exponential Models</p>	<p>Construct and compare linear, quadratic, and exponential models and solve problems.</p> <p>F.LE.A.3. Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.</p>		

<p>Statistics and Probability: Interpreting Categorical and Quantitative Data</p>	<p>Summarize, represent, and interpret data on a single count or measurement variable: S.ID.A.1 Represent data with plots on the real number line (dot plots, histograms, and box plots). S.ID.A.2 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. S.ID.A.3 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).</p>		
<p>Statistics and Probability: Interpreting Categorical and Quantitative Data</p>	<p>Summarize, represent, and interpret data on two categorical and quantitative variables: S.ID.B.5 Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data. S.ID.B.6 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. <i>Use given functions or choose a function suggested by the context. Emphasize linear, quadratic and exponential models.</i> b. Informally assess the fit of a function by plotting and analyzing residuals.</p>		
<p>Statistics and Probability: Interpreting Categorical and Quantitative Data</p>	<p>Interpret linear models: S.ID.C.8 Compute (using technology) and interpret the correlation coefficient of a linear fit. S.ID.C.9 Distinguish between correlation and causation.</p>		