
Coal City Unit District #1
Algebra 2
Math Curriculum

MA.A2:1 Students will use complex numbers in polynomial identities and equations. (CN2, CN7, CN8, CN9)

MA.A2:1-1 Use Euler's notation ($3i$, etc) to simplify square roots.

MA.A2:1-2 Add, subtract, multiply, and divide complex numbers.

MA.A2:2 Students will build functions. (BF1c, BF2, BF4a, BF4b, BF4d, BF5)

MA.A2:2-1 Perform operations with functions and compositions of functions.

MA.A2:2-2 Find the inverse of a function.

MA.A2:2-3 Determine if a relationship is a direct or inverse relationship, or may be neither.

MA.A2:3 Students will demonstrate an understanding of arithmetic performed on polynomials, rational expressions, and rational equations. (A.SSE2, APR3, APR7)

MA.A2:3-1 Rewrite the structure of a complicated rational and radical expressions. (e.g. rationalize denominators, rational exponents.)

MA.A2:3-2 Add, subtract, multiply, and divide nonzero rational and radical expressions.

MA.A2:4 Students will solve equations as a process of reasoning and explain the reasoning. (REI2, REI4a, REI4b, REI7, REI8, REI11, REI12, CED1, CED4)

- MA.A2:4-1 Solve rational and radical equations in one variable.
- MA.A2:4-2 Complete the square to transform any quadratic equation into vertex form.
- MA.A2:4-3 Solve quadratic equations with lead coefficients that have real or complex solutions by completing the square, the quadratic formula or factoring. (Write complex solutions in the form $a \pm bi$ for real numbers a and b .)
- MA.A2:4-4 Solve systems of equations consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. (e.g. find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$).
- MA.A2:4-5 Represent a system of equations as a single matrix equation in a vector variable.
- MA.A2:4-6 Graph the solution to a system of inequalities in two variables.
- MA.A2:4-7 Solve absolute value equations and inequalities in one variable.
- MA.A2:4-8 Solve a system of 3 equations of first degree.

MA.A2:5 Students will demonstrate understanding of the concept of a function and use function notation. (IF4, IF5, IF6, IF7a, IF7b, IF7c, IF7d, IF8, IF9)

- MA.A2:5-1 Calculate the average rate of change of a nonlinear function over a specified interval.
- MA.A2:5-2 Graph or identify quadratic functions showing vertex, axis of symmetry, intercepts, maxima, and minima.
- MA.A2:5-3 Graph square root, cube root, and absolute value functions.
- MA.A2:5-4 Interpret the zeros and maximum or minimum values of the graph of a quadratic function in terms of a context.

MA.A2:6 Students will use categorical and quantitative data. (ID6)

- MA.A2:6-1 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.
- MA.A2:6-2 Fit a function to data represented on a scatter plot.