
Coal City Unit District #1
Algebra 1
Math Curriculum

MA.A1:1 Students will demonstrate an understanding of numbers and quantities. (9-12:N.RN.1, N.RN.2, N.RN.3, A.SSE.2)

- MA.A1:1-1 Write and simplify using the properties of rational exponents.
- MA.A1:1-2 Simplify expressions involving radicals.
- MA.A1:1-3 Add or subtract rational and irrational numbers.
- MA.A1:1-4 Multiply or divide rational and irrational numbers.
- MA.A1:1-5 Rationalize denominators.
- MA.A1:1-6 Add or subtract radical numbers.
- MA.A1:1-7 Multiply or divide radical numbers.
- MA.A1:1-8 Identify and apply properties of algebra.
- MA.A1:1-9 Convert a given rate to an equivalent rate in different units.
- MA.A1:1-10 Simplify expressions given within a geometric context.

MA.A1:2 Students will demonstrate the ability to see structure in expressions. (9-12:A.SSE.1a, A.SSE.1b, A.SSE.2, A.SSE.3b)

- MA.A1:2-1 Interpret parts of an expression.
- MA.A1:2-2 Factor polynomials by using the Greatest Common Factor.
- MA.A1:2-3 Factor polynomials in the form $ax^2 + bx + c$, $a = 1$
- MA.A1:2-4 Factor polynomials in the form $ax^2 + bx + c$, $a \neq 1$
- MA.A1:2-5 Factor a four-term polynomial by grouping.
- MA.A1:2-6 Factor polynomials using special cases.
- MA.A1:2-7 Simplify polynomials given within a context.

MA.A1:3 Students will demonstrate an understanding of arithmetic with polynomials and rational expressions. (9-12:A.APR.1)

- MA.A1:3-1 Classify polynomials using degrees and terms.
- MA.A1:3-2 Add and subtract polynomials.
- MA.A1:3-3 Multiply polynomials.
- MA.A1:3-4 Adding and subtracting rational expressions
- MA.A1:3-5 Multiplying and dividing rational expressions
- MA.A1:3-6 Simplify polynomials given in geometric context

MA.A1:4 Students will demonstrate an understanding of creating linear equations and inequalities. (9-12:A.CED.1, F.LE.5, F.BF.1, F.IF.3)

- MA.A1:4-1 Create and graph linear equations or inequality given a table.
- MA.A1:4-2 Create linear equations or inequality given a graph.
- MA.A1:4-3 Create and graph linear equations or inequality given values (slope, y-int, points, other equations).
- MA.A1:4-4 Create and graph linear equations or inequality given written context.
- MA.A1:4-5 Rearrange formulas to highlight a quantity of interest.
- MA.A1:4-6 Solve linear functions in real world applications.

MA.A1:5 Students will demonstrate reasoning with equations and inequalities. (9-12:A.SSE.3a, A.CED.4, A.REI.1, A.REI.2, A.REI.3, A.REI.4, A.REI.5, A.REI.6, F.IF.8a, F.IF.8b)

- MA.A1:5-1 Solve linear equations.
- MA.A1:5-2 Solve rational equations.
- MA.A1:5-3 Solve radical equations.
- MA.A1:5-4 Solve and graph inequalities.
- MA.A1:5-5 Solve and graph compound inequalities.
- MA.A1:5-6 Solve and graph absolute value equations
- MA.A1:5-7 Solve and graph absolute value inequalities.

MA.A1:6 Students will demonstrate reasoning with quadratic equations. (9-12:A.SSE.3a, A.SSE.3b, A.APR.3, A.REI.4, A.REI.7)

- MA.A1:6-1 Identify key features of a quadratic equation.
- MA.A1:6-2 Create and graph a quadratic equation.
- MA.A1:6-3 Solve quadratic equations.
- MA.A1:6-4 Solve quadratic equations using tables and graphs.
- MA.A1:6-5 Solve quadratic equations by factoring.
- MA.A1:6-6 Solve quadratic equations using square roots.
- MA.A1:6-7 Solve quadratic equations by completing the square.
- MA.A1:6-8 Solve quadratic equations using the quadratic formula.
- MA.A1:6-9 Determine the number of solutions using the discriminant.
- MA.A1:6-10 Solve systems of quadratic equations.
- MA.A1:6-11 Solve quadratic functions in real world applications.

MA.A1:7 Students will demonstrate an understanding of interpreting functions. (9-12:F.IF.1, F.IF.2, F.IF.6, I.IF.9, F.LE.1a, F.LE.1, F.LE.1b, F.LE.3)

- MA.A1:7-1 Identify types of functions and their properties.
- MA.A1:7-2 Evaluate functions given the rule.
- MA.A1:7-3 Estimate or find the rate of change or initial value of a linear function.
- MA.A1:7-4 Graph cubic functions.
- MA.A1:7-5 Graph exponential functions.
- MA.A1:7-6 Graph absolute value functions.
- MA.A1:7-7 Graph square root functions.
- MA.A1:7-8 Graph cube root functions.
- MA.A1:7-9 Use the parent function to create an equation from a graph.
- MA.A1:7-10 Use the parent function to describe the transformation from a graph.
- MA.A1:7-11 Determine the domain and range of a function.

MA.A1:8 Students will be able to solve pairs of simultaneous linear equations or inequalities.

- MA.A1:8-1 Solve simultaneous equations by graphing.
- MA.A1:8-2 Solve simultaneous equations by substitution.
- MA.A1:8-3 Solve simultaneous equations by elimination.
- MA.A1:8-4 Solve simultaneous inequalities by graphing.
- MA.A1:8-5 Solving simultaneous equations in real world context

MA.A1:9 Students will interpret categorical and quantitative data. (9-12: S.ID.1, S.ID.2, S.ID.6c)

- MA.A1:9-1 Create histograms, scatter plots, box-plots, and stem and leaf plots for a given situation.
- MA.A1:9-2 Calculate the measures of central tendency and spread given a list of data.
- MA.A1:9-3 Calculate the measure of dispersion given a list of data.
- MA.A1:9-4 Determine appropriate central tendency for given data.
- MA.A1:9-5 Draw and create an equation for a line of best fit given a scatter plot.
- MA.A1:9-6 Predict information from a given set of data.