| **Grade** | **Big Idea** | **Essential Questions** | **Concepts** | **Competencies** | **Standard** | **Eligible Content** | **Vocabulary** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **ALG 1** | Mathematical relationships among numbers can be represented, compared, and communicated. Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.Patterns exhibit relationships that can be extended, described, and generalized. | How is mathematics used to quantify, compare, represent, and model numbers? How can mathematics support effective communication?How are relationships represented mathematically?What does it mean to estimate or analyze numerical quantities?How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations?What makes a tool and/or strategy appropriate for a given task?How can patterns be used to describe relationships in mathematical situations?  | Rational and Irrational Numbers | Represent and/or use numbers in equivalent forms (integers, fractions, decimals, percent’s, square roots, exponents). | CC.2.1.HS.F.1CC.2.1.HS.F.2 | A1.1.1.1.1 A1.1.1.1.2 A1.1.1.3.1 | Absolute ValueAdditive InverseAdditive Property of EqualityAlgorithmArithmetic SequenceAssociative PropertyAsymptoteBar GraphBinomialBivariate DataBoundary LineBounded RegionCircle GraphCoefficientCommutative PropertyComposite NumberCompound EventCompound InequalityDegree (of polynomial) Dependent EventsDomain (of Relation or Function) EquivalentExponential EquationExponential ExpressionExponential FunctionExponential Growth/DecayExtrapolateFrequencyFunctionGeometric SequenceHalf-PlaneIndependent EventsIndependent VariableIndexInterpolateInterquartile RangeInverse (of a Relation) Inverse OperationMaximum Value (of a Graph)Measure of Central TendenciesMeasure of DispersionMinimum Value (of a Graph)Multiplicative InverseMultiplicative Property of EqualityMultiplicative Property of ZeroMutually Exclusive EventNegative ExponentOddsOutlierPoint-Slope FormPolynomial FunctionPositive ExponentsProbability of Compound EventsQuadrantsQuadratic FunctionsQuartileRadical ExpressionRangeRate (of Change) RelationRepeating DecimalScatterplotSimple EventSimplest form (of an Expression)Slope-Intercept FormStandard Form (of a Linear Equation) Substitution MethodSystems of Linear EquationsSystems of Linear InequalitiesTerminating DecimalTest PointTrinomialUnbounded Region |
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| **ALG 1** | Mathematical relationships among numbers can be represented, compared, and communicated. Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations. | How is mathematics used to quantify, compare, represent, and model numbers?  How can mathematics support effective communication? | Polynomial and Rational Expressions  | Simplify/factor expressions involving polynomials.Use polynomial identities.Perform arithmetic operations on polynomials.Apply and extend previous understandings of arithmetic to algebraic expressions. | CC.2.2.HS.D.1CC.2.2.HS.D.2CC.2.2.HS.D.3CC.2.2.HS.D.5CC.2.2.HS.D.6 | A1.1.1.5.1 A1.1.1.5.2 A1.1.1.5.3 |  |
| **ALG 1** | Mathematical relationships among numbers can be represented, compared, and communicated. Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations. | How is mathematics used to quantify, compare, represent, and model numbers? How can mathematics support effective communication?How can expressions, equations and inequalities be used to quantify, solve, model, and/or analyze mathematical situations? | Equations and Inequalities | Write, solve, and/or graph linear equations and inequalities using various methods.Write, solve, and/or graph systems of linear equations and inequalities using various methods.Use and/or identify algebraic properties. | CC.2.2.HS.C.1CC.2.2.HS.C.2CC.2.2.HS.C.3 | A1.2.1.1.1 A1.2.1.1.2 A1.2.1.1.3 A1.2.2.1.1 A1.2.2.1.2 A1.2.2.1.3 A1.2.2.1.4 A1.2.1.2.1 A1.2.1.2.2 A1.1.2.1.1 A1.1.2.1.2 A1.1.2.1.3 |  |
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| **ALG 1** | Mathematical relationships among numbers can be represented, compared, and communicated. Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.Patterns exhibit relationships that can be extended, described, and generalized.Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.Data can be modeled and used to make inferences. | How is mathematics used to quantify, compare, represent, and model numbers? How are relationships represented mathematically?How can expressions, equations and inequalities be used to quantify, solve, model, and/or analyze mathematical situations?How can recognizing repetition or regularity assist in solving problems more efficiently?How can patterns be used to describe relationships in mathematical situations? How can data be organized and represented to provide insight into the relationship between quantities?How does the type of data influence the choice of display?How can probability and data analysis be used to make predictions? | Patterns, Relations, and Functions | Define, evaluate, and compare functions.Use the concept and notation of function to interpret and apply them in terms of their context.Construct and compare linear, quadratic, and exponential models and solve problems.Create a function and/or sequence that model relationships between two quantities.Create and/or analyze functions using multiple representations (graph, table, and equation).Create new functions from existing functions (transformations of graphs). | CC.2.2.HS.C.1CC.2.2.HS.C.2CC.2.2.HS.C.3CC.2.2.HS.C.4CC.2.2.HS.C.6 | A1.2.1.1.1 A1.2.1.1.2 A1.2.1.1.3 A1.2.2.1.1 A1.2.2.1.2 A1.2.2.1.3 A1.2.2.1.4 A1.2.1.2.1 A1.2.1.2.2 A1.1.2.1.1 A1.1.2.1.2 A1.1.2.1.3 |  |
| **ALG 1** | Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools. Measurement attributes can be quantified, and estimated using customary and non-customary units of measure.Patterns exhibit relationships that can be extended, described, and generalized.Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.Data can be modeled and used to make inferences. | In what ways are the mathematical attributes of objects or processes measured, calculated and/or interpreted?How precise do measurements and calculations need to be?How can patterns be used to describe relationships in mathematical situations? How can recognizing repetition or regularity assist in solving problems more efficiently?How can data be organized and represented to provide insight into the relationship between quantities?How does the type of data influence the choice of display?How can probability and data analysis be used to make predictions? | Categorical and Quantitative Data | Analyze a set of data for a pattern, and represent the pattern with an algebraic rule and/or a graph.Summarize, represent, and interpret single-variable data and two-variable data.Use measures of dispersion to describe a set of data (range, quartiles, interquartile range).Analyze and/or interpret data displays and/or use them to make predictions (circle graph, line graph, bar graph, box-and-whisker plot, stem-and-leaf plot, scatter plot).Make inferences and justify conclusions based on sample surveys, experiments, and observational studies. | CC.2.4.HS.B.1CC.2.4.HS.B.2CC.2.4.HS.B.3CC.2.4.HS.B.5 | A1.2.3.1.1 A1.2.3.2.1 A1.2.3.2.2 A1.2.3.2.3 A1.2.1.1.1 A1.2.1.1.2 A1.2.1.1.3 A1.2.1.2.1 A1.2.1.2.2 A1.2.2.2.1  |  |
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