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| Topic | Intermediate 1 | Intermediate 2 | Secondary 1 | Secondary 2 | Secondary 3 |
| Solving Equations  | Linear: 2 step, fractional coefficients, distributive propertySolving proportion equationsLinear inequalities  | Linear: multi variable, variables on both sides,fractional coefficientsAbsolute Value—BasicRational equations Working with formulas/rearranging formulas (isolate the variable)Solving linear inequalities | Review: Solving linear equationsAbsolute Value – ExpandRational equationsExponentials with graphing/reasoning Working with formulas  | Quadratic: Solving by factoring, quadratic formula, completing the square, taking square roots, using a calculator to find zerosRational equations Domain issuesRadical Equations  | Higher Order: Rational roots, remainder theorem, long division, synthetic division, fundamental theorem of algebra, Descartes’ Rule of Signs, Numerical Methods: calculator approximation, Newton’s MethodFactoring (by grouping/other methods)Radical EquationsExponential/LogarithmicSolving inequalities with higher order |
| Topic | Intermediate 1 | Intermediate 2 | Secondary 1 | Secondary 2 | Secondary 3 |
| Simplifying and Working with Numerical Expressions | Review fractions (add, subtract, multiply, divide)Review signed numbersOrder of operationsEvaluating complex rationals Exponents (numerical values) | Include fractions in contextNumber systems (real, rational, irrational)Properties of exponents (numerical) (make them write it out) | Include fractions in contextProperties of exponents (numerical) | Evaluating complex rationals Unit circleComplex numbers (basic operations), Complex planeNumber systems: review real, rational, irrational, complexReview properties of exponents (numerical)Properties of rational exponents (numerical) | Trig identitiesEvaluating logarithms (basic properties) |
| Topic | Intermediate 1 | Intermediate 2 | Secondary 1 | Secondary 2 | Secondary 3 |
| Simplifying and Working with Algebraic Expressions | Touch on combining like termsFactoring by “un-distributing” | Combining like terms (linear, constants)Properties of Exponents (algebraic)  Multiplying a monomial with a binomial Factor out a GCF | Combining like terms (linear, constants)Properties of exponents (algebraic)FactoringMultiplying two binomials with  | Combining like terms (radical, polynomial, rational)Review properties of exponentsProperties of rational exponents (algebraic)Rational exponents (switching forms)Factoring polynomials (extend time spent), sum or difference of squares, quadratic like, factoring by grouping  | Combining like terms (rational, logarithmic)Factoring higher order expressions (tie to zeros) |
| Topic | Intermediate 1 | Intermediate 2 | Secondary 1 | Secondary 2 | Secondary 3 |
| Solving Systems of Equations |  | Solving linear systems by graphing (table mostly, slope-intercept), substitution no context Ex: , Solving systems of linear inequalities (compound inequalities, AND/OR, conjunctions) Ex:  | Writing equations from context.Solving linear systems of equations (by graphing, elimination, substitution Ex: )Solving systems with one exponential and one linear equation by graphing.Solving systems of inequalities (2 variables, more complex compound inequalities: variables on both sides, distribute negatives)HONORSMatrices (add, subtract, multiply) from a situation | Review elimination method with 2 equations, 2 unknowns.Solving systems by graphing and substitution (linear and quadratic, linear and circles)Solve systems with 3 equations, 3 unknowns.Solving systems of inequalities by graphing (quadratic and quadratic, linear and quadratic) | Solving systems with matrices (notation, building matrices to model, RREF, inverse, determinant) |
| Topic | Intermediate 1 | Intermediate 2 | Secondary 1 | Secondary 2 | Secondary 3 |
| Conics |  |  |  | Parabolas Focus, directrix, axis of symmetryIf given a directrix and focus, write the equationCirclesStandard form Given the equation, find the center, radius, and graph.Given center and radius, write the equation | EllipsesHyperbolas |
| Topic | Intermediate 1 | Intermediate 2 | Secondary 1 | Secondary 2 | Secondary 3 |
| Functions |  | Function notationDomain and Range (interval notation optional)Modeling functions with equations – linearInverse operations (when solving equations) produce the identity | Function notationDomain and Range (exponential functions)Seeing patterns (sequences: arithmetic, geometric)Arithmetic of Functions (connect to solving)Simple compositions Ex: Modeling functions with equations – linear, exponentialInverses (symmetry, reflection across y=x) | Domain and Range (interval notation)Modeling with equations – radicals (square roots)Periodic Trig Functions (unit circle, graphing sine/cosine)Inverse Functions: linear, quadraicInverse notationCompositionWith linear/quadratic (connect to solving by substitution) | Sequences and Series (arithmetic, geometric, finite, infinite)Modeling functions with equations –exponential, polynomial with order higher than 2, radicals (higher order), logarithmicInverseComposition of functions (all notations) |
| Topic | Intermediate 1 | Intermediate 2 | Secondary 1 | Secondary 2 | Secondary 3 |
| Functions (continued)“Good Graphing”Label axesScale (in context)Appropriate arrowsx-int(s), y-intdiscrete/continuouslinear (use a ruler)accurate/precise |  | Graphing linear functions – tables mostly, slope intercept formTransformationsVertical | Graphing absolute values functionsGraphing exponential functionsGraphing piecewise functions (absolute value)Translations are vertical transformations (connect vertical shift of a graph of a function to a translation of a polygon) | Graphing quadratic functionsGraphing square rootsGraphing piecewise (linear, quadratic) | Graphing polynomial functionsGraphing logarithmic functionsGraphing rational functionsGraphing radicals (cube roots)Graphing greatest integer functionGraphing 3 variables |
| Topic | Intermediate 1 | Intermediate 2 | Secondary 1 | Secondary 2 | Secondary 3 |
| Geometry | Area (circle, square, rectangle, triangle)PerimeterVolumeSurface areaAngles -vertical angles-adjacent-supplementary-complementary-linear pairs-Know correct notationsName an angle in 4 waysUse a protractor to measure an angleSolving proportions | Points, lines, planes, rays, segments (correct notation, naming)Review using a protractorParallel lines with transversal: angle relationships like alternate interior/exterior, corresponding, consecutive (same side) interior/exteriorUse theoremsDistance FormulaCongruence StatementsClassify triangles according to their sides and anglesUse and apply properties of isosceles and equilateral triangles.Inequalities to determine sides and angles (largest angles across from longest sides, etc.)Recognize triangles and their corresponding partsSimilarityPythagorean ThmFind surface area and volume of a prism, cylinder, pyramid, cone, and sphere.Compare and find the areas and volumes of similar solids. | Constructions (compass/straightedge)-angle bisector-segment bisector-perpend. bisector-copy a segment-copy an angle-inscribed hexagon-equilateral triangle-square-parallel lines-perpendicular to point on a line-perpendicular to point off a lineJustify why these constructions work with a proof (two-column, paragraph, flow chart proofs)Congruence (SAS, SAS, ASA, AAS, HL)Sum of measures of interior anglesSum of measures of exterior anglesClassify as equilateral, equiangular, regular, or none Classify and know properties of quadrilateralsProperties of diagonalsClassify polygons in the coordinate planePerimeter, area of parallelograms, trapezoids, rhombus, kites | Midpoint FormulaCenters of a triangle (orthocenter, incenter, circumcenter, centroid)Parallelograms-rhombus, rectangle, square-characteristicsSimilarity-write ratios-solve proportions-determine similarity-find scale factor-find measurement-geometric mean-find perimeters and areas of similar figuresDilations-scale factor-reduction/enlargementTangents/Secants30-60-9045-45-90Use the Pythagorean Theorem and it’s converseProve:Isosceles Base Angle theorem and corollaryMidsegments of trianglesRight Triangle TrigFind missing side lengths and anglesFind the measure of a central angle and an arcFind the circumference and arc length of a circleFind the area of a sector of a circleIdentify and use the properties of a tangent to a circle. |  |