

Students will be able to: NUMBER SENSE AND OPERATIONS

- Identify and use the properties of operations on real numbers in the context of simplifying expressions.
- Simplify and/or estimate the approximate value of numerical expressions involving positive exponents, absolute value and roots without a calculator.
- Use estimation to judge the reasonableness of results for solutions to problems.

Students will be able to: PATTERNS, RELATIONS, AND ALGEBRA

- Describe, complete, extend, analyze, generalize, and create a wide variety of patterns and functional relationships.
- Demonstrate an understanding of the relationship between the various representations of a line. (*numeric, graphic, algebraic*)
- Add, subtract, multiply, divide, and simplify polynomial and rational expressions.
- Find the solutions to quadratic equations using various methods and demonstrate an understanding of the equivalence of the methods.
- Solve equations and inequalities involving absolute value of linear expressions in finding solutions to problems.
- Use algebraic and graphic techniques, as well as technology where appropriate, to solve everyday problems that can be modeled using linear, reciprocal, quadratic, exponential functions, systems of linear equations or inequalities using various methods.

Students will be able to: GEOMETRY

- Identify figures using properties of sides, angles, diagonals and symmetries.
- Draw congruent and similar figures using compass, straight-edge and protractor, then make and justify by logical conjectures about the methods of construction.
- Recognize and solve problems involving angles formed by transversals of coplanar lines as well as problems associated with radii, chords, and arcs within or on the same
- Apply correspondences and properties of figures to find missing parts of geometric figures, and provide logical justification.
- Solve simple triangle problems using the triangle angle sum property and/or the Pythagorean Theorem.
- Use the properties of special triangles.
- Use graph coordinates to calculate midpoint, slope and length of segments.
- Determine equations for lines that are either perpendicular or parallel to a given line.
- Analyze and draw transformations of figures in the coordinate plane.
- Demonstrate the ability to visualize 3-dimensional figures as projections and cross-sections in a 2-Dimensional plane.
- Solve maximization or minimization problems graphically using corner points of a feasible region.

*Students will be able to:* MEASUREMENT

- Calculate perimeter, circumference, and area of common geometric figures.
- Find the lateral area, lateral surface area and volume of various 3-dimensional geometric objects.
- Relate changes in the measurement of one attribute of an object to changes in other attributes.
- Describe how rounding or approximating answers affect the solution to a problem.

*Students will be able to:* DATA ANALYSIS, STATISTICS, AND PROBABILITY

- Compare sets of data by selecting, creating, and interpreting the graphical representation that would best suit the data, then calculating appropriate statistics to analyze the data.
- Sketch and interpret a line of best fit on a scatter plot of two data sets.
- Describe and explain how the relative size of a sample and the population affect the validity of predictions from the set of data.