

GEOMETRY

CONCEPT/UNIT OUTLINE

UNIT ONE: Numeric & Algebraic Expressions & Equations

- 1 Simplify and evaluate numeric/algebraic expressions
- 2 Solve linear and quadratic algebraic equations for a variable
- 3 Simplify expressions and solve equations with radical notation
- 4 Solve quadratic equations using the quadratic formula
- 5 Solve systems of equations
- 6 Identify points and other parts of the coordinate plane

UNIT TWO: Basic Elements of Geometry

- 7 Describe, define, and draw basic geometric principles
- 8 Graph, solve, and write the equations of lines on the coordinate plane using slope-intercept form
- 9 Name and measure segments
- 10 Determine properties of segments computing segment length algebraically and by applying distance
- 11 Name and measure angles
- 12 Determine properties of angles and compute angle measures

UNIT THREE: Reasoning

- 13 Use inductive reasoning to find patterns
- 14 Use deductive reasoning to check validity of conditionals and form counterexamples
- 15 Identify algebraic properties
- 16 Complete an algebraic proof
- 17 Identify geometric properties
- 18 Complete a geometric proof
- 19 Identify, use, and prove properties involving midpoints, angle bisectors, and the coordinate plane
- 20 Identify, measure, and prove angle relationships

UNIT FOUR: Angles & Lines

- 21 Use and prove ideas with perpendicular lines
- 22 Identify special angles around lines and special lines
- 23 Use properties of parallel lines to complete diagrams
- 24 Prove lines as parallel
- 25 Write linear equations that are parallel or perpendicular to other lines

UNIT FIVE: Triangle Theory

- 26 Classify triangles by their sides and by their angles
- 27 Determine angle measures with triangles
- 28 Match and solve parts of congruent triangles
- 29 Prove triangles congruent
- 30 Write proofs to solve congruent triangles & their parts

- 31 Use special triangle theory with isosceles and equilateral triangles
- 32 Draw & find special properties of segments in triangles (altitudes, medians, & perpendicular bisectors)
- 33 Use numerical and triangle inequalities to determine the longest and shortest sides/angles

UNIT SIX: Polygons

- 34 Name & find angle measures in and around polygons
- 35 Use properties of parallelograms
- 36 Solve sides and angles in special parallelograms (rectangles, squares, and rhombuses)
- 37 Find angles and sides in trapezoids

UNIT SEVEN: Ratios, Proportions, Similar Triangles

- 38 Write, simplify, and use ratios to solve
- 39 Write, simplify, and use proportions to solve
- 40 Use the concept of similarity to find angles and sides in polygons and in other applications
- 41 Prove similarity of triangles
- 42 Identify and solve special proportions of various geometric figures

UNIT EIGHT: Right Triangles & Trigonometry

- 43 Set up and correctly use the Pythagorean Theorem
- 44 Identify sides in special right triangles
- 45 Write trigonometric ratios and use a calculator and/or table to determine measures
- 46 Solve right triangles & other figures with trigonometry
- 47 Problem-solve with right triangle applications

UNIT NINE: Circles

- 48 Identify, describe, and draw circle parts
- 49 Write the equation of a circle using the coordinate plane
- 50 Identify and create tangent lines and tangent circles
- 51 Identify, measure, and find relationships between central angles and their arcs
- 52 Identify, measure, and find relationships between arcs and their intersecting chords
- 53 Determine arc and inscribed angle measures
- 54 Find angles and arcs created by two chords, two secant lines, or a combination of with a tangent line
- 55 Find segment lengths in circles using chord, tangent, and secant properties

UNIT TEN: Measures in Two & Three Dimensions

- 56 Find perimeter and area of polygons
- 57 Find circumference and area of circles and sectors
- 58 Create nets and count elements of solids
- 59 Determine surface area and volume of a solid
- 60 Identify and use various transformations