

STIAchievement Services

Formative Assessments Pacing Guide for St. Clair County Schools AHSGE Mathematics Objectives Geometry

(Each Objective includes 4 test items except Objectives V – 1, 4 and VI – 1 which have 6 test items each)

Cos Standards/ AHSGE Objectives and Eligible Content (Textbook/Other Resources)	Months to be Taught (Semester I/ Semester II) Accelerated Guide Weeks 1-7	Content Vocabulary (Word Walls)	Test Vocabulary/ Bloom's Level (Word Walls)	Rigor Level I-introduces content/basic theory Rigor Level II-connects to prior knowledge Rigor Level III-focuses on highly developed skills, integrates complex skills Rigor Level IV-demonstrates skills in independent groups (project based); includes use of technology
I –1 Apply order of operations. a. One, two, or no variables b. One set of parentheses c. Determining the absolute value of a term d. Squaring the quantity in parentheses e. No more than four terms f. Adding or subtracting negative integers g. Decimals to the tenths' place	NA	Order of operations, variables, absolute value, squaring, negative integers, decimals, quantity, terms, tenths place, grouping symbol	Simplify/ Level 3	Level II
I – 2 Add and subtract polynomials. a. Using the distributive property b. Unlike denominators	NA	Polynomials, distributive property, denominator, like, unlike, variable, fraction, square	Simplify/Level 3	Level II

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I – 3 Multiply polynomials. a. Multiplying two quantities in parentheses b. Squaring a quantity in parentheses c. Adding or subtracting d. Raising a quantity to a power e. Fractions f. Adding exponents	NA	Polynomials, squaring, ...to a power, exponents, quantity, fraction, brackets, denominators	Simplify, which of these is equivalent?/Level 4	Level II
I – 4 Factor polynomials. a. Difference of two squares b. Greatest common monomial c. Trinomial d. Common binomial e. Options will be factored completely.	NA	Factor polynomials, factoring, difference of two squares, greatest common monomial, trinomial, binomial, factored completely, monomial, binomial,	Factor, what is the greatest common factor? /Level 3	Level III

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II – 1 Solve multi-step equations of first degree. <ul style="list-style-type: none"> a. One set of parentheses b. Finding the sum or difference of terms containing the same variable c. Adding or subtracting a variable to or from both sides of the equation d. The solution to the equation e. Coefficients may be simple fractions. 	Aug./Jan. Week 1	Multi-step, first degree, parentheses, sum, difference, variable, equation, inequality, cross product, solution, coefficient, simple fractions, both sides, distribute	Solve /Level 3	Level III
II – 2 Solve Quadratic equations that are factorable. <ul style="list-style-type: none"> a. Factoring of the type $ax^2 + bx = 0$ b. Difference of two squares c. Greatest common nominal d. Trinomial e. Common binomial 	NA	Quadratic equations, factorable, greatest common monomial, trinomial, common binomial, square (2), difference of 2 squares	Solve/Level 3	Level III
II –3 Solve systems of two linear equations. <ul style="list-style-type: none"> a. Solving for the values of both x and y b. The options may be four graphs with lines plotted and the intersection point labeled with its ordered pair. 	NA	Systems of two linear equations, values of x and y, solution, plotted lines, intersection	What is the solution of the following system of linear equations? Which of these graphs could be used to find the solution for	Levels III

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		point, ordered pair, value of, graph, substitution, elimination, slope-intercept form, linear,	the following system of equations? / Levels 4-5	
II – 4 Solve multi-step inequalities of first degree. a. A negative coefficient may be used.	NA	Multi-step inequality, first degree, negative, distribute, coefficient, inequality, less than, greater than, less than or equal x, greater than or equal to, reciprocal	Solve/Level 3	Level III

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<p>III – 1 Identify functions. The options may be:</p> <ul style="list-style-type: none"> a. Graphs, ordered pairs, tables or mappings b. Equations when given a table of values or ordered pairs c. Tables of values or ordered pairs when given an equation d. Functions may be expressed using either terminology "$f(x) =$" or "$y =$". 	NA	Multi-step inequality, first degree, negative, distribute, coefficient, inequality, less than, greater than, less than or equal to, greater than or equal to, reciprocal	Which of these graphs represents a function? Which of these mappings is NOT a function? Which of these tables represents the function? Which of the following relations describes a function? / Level 4	Level I

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<p>III – 2 Find the range of functions when given the domain.</p> <p>a. The domain of a function may be a single value or set of values. b. A set of ordered pairs may be used. c. Functions may be expressed using either terminology "$f(x) =$" or "$y =$".</p>	NA	Range, function, domain, single value, set of values, ordered pairs, $f(x) =$ OR $y =$, terminology, substitution, graph	What is the range of the function?/ Level 4	Level II
<p>IV – 1 Find the perimeter (Ch.1/8), circumference (Ch.11), area(Ch.11,12,8), or volume(Ch.12) of geometric figures.</p> <p>a. The value of pi (π) will be 3.14. b. Options may be left in terms of π. c. Unnecessary dimensions may be included. d. Drawings may be used. e. Finding volume or surface area of a rectangular prism may be required. f. Extracting a square root may be required. g. Determining the area of a circle when given the diameter in the drawing may be required. h. The formulas will be given in the problems.</p>	Perimeter: Aug./Jan. Circumference/Area of Circles: Nov./ April Area/Perimeter of polygons: Oct./March Surface Area-Volume: Dec./Feb. Week 1	Perimeter, substitute, circumference area, volume, value of pi (π), volume, surface area, rectangular prism, square root, area of a circle, diameter, formula, geometric figure, dimension, extracting, circle, height, base radius	Total surface area, use formula, dimensions, volume, area, figure, centimeters, square feet, circular, diameter, length, nearest square foot, diagram, circumference/ Level 4	Level II

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<p>IV – 2 Find the distance (Ch. 6), midpoint(Ch.2), or slope(Ch.4) of line segments when given two points.</p> <p>a. Radicals b. Radicals will be simplified. c. Lines graphed on the coordinate plane d. Determining slope of a line given a line on the coordinate plane with two points on a line on the coordinate plane without any coordinates labeled e. The formulas will be given in the problems.</p>	<p>Distance: Oct./March</p> <p>Midpoint: Aug/Jan.</p> <p>Slope: Sept/Feb.</p> <p>Weeks 1-3</p>	<p>Distance, radicals, simplify, coordinate plane, ordered pairs, slope of a line segment, midpoint, line segment, line, coordinate, point (x,y), (x1, y1) (x2, y2)</p>	<p>endpoints, coordinates, segment, graph, use formula, midpoint formula, distance formula, slope formula, slope, midpoint, distance/ Level 3</p>	<p>Level II</p>
<p>V – 1 Graph or identify graphs of linear equations. (Ch.4)</p>	<p>Sept./Feb. Week 2</p>	<p>Graph, identify graphs, linear equations, $f(x)$, common relations such as: $x=\text{constant}$, $y=\text{constant}$, $y=x$, etc., $-y = x$, $-y = \sqrt{x}$, $-y = x^2$, $-y = x$ Ordered pair, slope, y-, intercept, slope-intercept formula, square root, absolute value, squared</p>	<p>Total surface area, use formula, dimensions, volume, area, figure, centimeters, square feet, circular, diameter, length, nearest square foot, diagram, circumference/ Level 4</p>	<p>Level II</p>

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V – 4 Identify graphs of common relations. a. Equations may be expressed in terms of $f(x)$. b. The options may be four graphs. c. The options may be four equations. d. The common relations are: $x = \text{constant}$, $y = \text{constant}$, $y = x$, $y = \text{square root of } x$, $y = x^2$, $y = x $	NA	See V-1 above for applicable selections	See V-1 above for applicable selections/ Level 4	Level II
V – 2 Graph lines given certain conditions. a. Two points, x- and y- intercepts, point and slope, slope and y- intercept	Sept./Feb. Week 2	Graph lines, x- and y- intercepts, point, slope	Line passing through point, slope, graphs/ Level 4	Level III
V – 3 Determine solution sets of inequalities. a. Compound inequality may be included. b. Solving inequality may be required. c. Options will be graphs.	NA	Solution sets of inequalities, compound, inequality, solution, greater than, less than, greater than or equal, less than or equal, "and", "or"	Solution, represents, graphs, of inequalities/ Level 4	Level III
VI – 1. Translate verbal or symbolic information into algebraic expressions; or identify equations or inequalities that represent graphs or problem situations. a. Determining an equation or expression when given a verbal description b. Graphing inequalities using a number line c. Determining the equation of a line given two ordered pairs	c & d: Sept./Feb. Week 2	Translate verbal/symbolic information, algebraic expressions, identify equations or	Equations, statement estimating, represents, line passing through points, inequalities,	Level III

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d. Determining the equation of a line given the line graphed on the coordinate plane		inequalities, represent problem situation, equation, y- intercept slope, slope intercept formula, expression, ordered pairs, line graph, coordinate plane, verbal description	describes, the same as/ Level 4	

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<p>VII – 1 Apply properties of angles and relationships between angles.</p> <p>a. The following properties and relationships may be included: vertical angles - adjacent angles - supplementary angles - complementary angles - linear pair - relationships among the measures of angles formed by two parallel lines and a transversal (Ch. 3)</p> <p>b. Word problems may be used.</p> <p>c. The knowledge of the sum of measures of angles may be used.(Ch. 10,3,8)</p> <p>d. Determining measurements of angles when the measurements of angles are expressed as algebraic expressions may be required. (Ch. 10,3)</p>	<p>a & d: Sept./Feb.</p> <p>c & d: Nov./April</p> <p>Weeks 4-5</p>	<p>properties, angles relationships of angles, linear pair, parallel lines, transversal, types of angles: vertical, adjacent, supplementary, complementary, sum of measures of angles, angles as algebraic expressions, degree, convex polygon, interior, exterior, terminology of $m\angle$, \rightarrow, \pm, \parallel, \leftrightarrow, ---</p>	<p>represents, angle, measure, diagram, value of x, intersect, given, interior angles, supplement, complement, linear pair/ Level 4</p>	<p>Level III</p>



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<p>VII – 2 Apply Pythagorean Theorem</p> <p>a. The Pythagorean Theorem will be given on the reference page. b. Diagrams, word problems, radicals will be used or included. (Ch.13) c. All radicals will be simplified. (Ch. 6) d. Drawings will be to scale.</p>	<p>b: Oct./March c: Nov./April Weeks 3-5</p>	<p>Pythagorean theorem, diagrams, word problems, radicals, simplified, drawing to scale, legs, squared, hypotenuse</p>	<p>base, distance, lengths, right triangle, diagram/Level 4</p>	<p>Level III</p>
<p>VII – 3 Apply properties of similar polygons. (Ch.9)</p> <p>a. Diagrams will be included. b. Drawings will be to scale. c. The word <i>similar</i> or the symbol " ~ " may be used. d. Use of the scale factor will be required.</p>	<p>Nov./April Weeks 3-5</p>	<p>properties, similar polygons, diagrams, scale factor, ~, similar, scale, ratio, proportion</p>	<p>dimensions, proportions, ~, segment, figure, ratio, similar/ Level 4</p>	<p>Level II</p>

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<p>VII – 4 Apply properties of plane and solid geometric figures.</p> <p>a. Diagrams will be included. b. Word problems will be used. c. The following content may be included: area and perimeter of triangles, rectangles, and squares – area and circumference of a circle, given radius or diameter – perimeter of a regular polygon, given one side – volume of rectangular prism or cylinder – sum of the measures of the angles in a triangle – sum of the measures of the angles in a rectangle (Ch. 8,12) d. Determining any dimension of a figure e. Determining any dimension of a figure when the dimension is expressed as an algebraic expression may be required.</p>	<p>Area/ perimeter: Oct./March</p> <p>Area/ circumference: Dec./May</p> <p>Volume/SA: Dec./May</p> <p>Sum of  Sept./Feb.</p> <p>Sum of  Oct./March</p> <p>Weeks 6-7</p>	<p>diameter, regular polygon, prism, cylinder, rectangular prism, properties, plane figures, solid figures, properties, area, perimeter, circumference , radius, angles, volume, dimension, algebraic expression, geometric figures, triangle, rectangle, square, sum of measures</p>	<p>square base, volume, base, area, perimeter, circumference, diameter, value of, the measure of, square feet, diagram, approximate/ Level 4</p>	<p>Level II</p>

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<p>VII – 5 Determine measures of central tendency.</p> <p>a. The word “mean” will be used for the arithmetic average. b. The set of numbers used to assess the range will not be in numerical order. c. Decimals up to hundredths may be used. d. Decimals with different numbers of decimal digits may be used in the same item. e. Frequency diagrams may be used.</p>	NA	range, median, mode, central tendency, decimal digits, "mean" = arithmetic average, frequency diagrams, numerical order, frequency	median number, mean average of, set of data, mode, average, frequency table/ Level 3	Level II
<p>VII- 6 Determine probabilities.</p> <p>a. Both AND and OR situations may be included.</p>	NA	probability, AND and OR situations	and, or, random, contains, chosen without replacement, distribution, positions, selecting/ Level 4	Level II
<p>VII – 7 Solve problems involving direct variation.</p> <p>a. Diagrams may be used. b. Verbal descriptions of proportions may be used. (Ch.9)</p>	Nov./April Weeks 6-7	direct variation, proportions, verbal descriptions	proportions, scale actual, British pound, varies directly, rate, relationship of, ratio/ Level 4	Level II

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<p>VII – 8 Solve problems involving algebraic concepts.</p> <p>a. Word problems will be used. b. Interpretation of figures may be required c. The following content may be included: distance/rate/time problems – money problems, which may require a system of equations – numbers (sum, difference, product, quotient) – simple age problems referring only to the present – consecutive integers – area, volume, dimension problems – quantity problems – cost problems – wage problems</p>	<p>a & c: Dec./May Weeks 6-7</p>	<p>algebraic concept, distance-rate-time, sum, difference, product, quotient, consecutive integers, area, volume, dimension, quantity, cost, wage, system of equations</p>	<p>average, total, deposit, interest, remainder, simple interest, invested, consecutive integers, rate, width, value of, volume, cubic/ Level 4</p>	<p>Level III</p>