

Algebra I Scope and Sequence

Pacing Guide, MGH, Student Expectations*APA only topics highlighted*
Each section = 1 day unless otherwise noted

Unit Time	1 st Grading Period {9 weeks – 36 days}	Student Expectations {See Curriculum pages for Specificity}	EM
10 days	Introductions and start of school set up Review basic operations <ul style="list-style-type: none"> Review absolute value, integers, real numbers (0-2) Operations with Integers (0-3) <p style="text-align: center;">----- CFA #1 -----</p>	Review basic operations 7.2(A) extend previous knowledge of sets & subsets using a visual representation to describe relationships between sets of rational numbers 6.3(D) add, subtract, multiply, & divide integers fluently	/
25 days	Linear Equations <ul style="list-style-type: none"> Properties of Numbers (1-3) Order of Operations & Distributive Property (1-2, 1-4) Writing Equations (2-1) Solving One-step & Multi-step Equations (2-2, 2-3) Solving Equations Variables On Both Sides (2-4) <p style="text-align: center;"><u>A.5A</u> (1 day)</p> <p style="text-align: center;">-----CFA #2 ---</p> Solving Equations Variables On Both Sides (2-4) <u>A.5A</u> (2 days) <ul style="list-style-type: none"> Solve Equations with Absolute Value (2-5) – Pre AP only*Vertical Alignment to Algebra 2 Literal Equations (2-8) A.12E (2 days) <p style="text-align: center;">-----</p> Simple Inequalities <ul style="list-style-type: none"> Solving Inequalities – Add/Sub (5-1) A.5B Solving Inequalities – Mult/Div (5-2) A.5B Solving Multi Step Inequalities (5-3) A.5B (2 days) <p style="text-align: center;">-----CFA #3-----</p> Solving Compound Inequalities (5-4) (1-2 days)	Linear Equations 7.11(A) model and solve one-variable, two-step equations and inequalities 8.8(C) model and solve one-variable equations with variables on both sides of the equal sign that represent mathematical and real-world problems using rational number coefficients and constants <u>A.5(A) solve linear equations in one variable, including those for which the application of the distributive property is necessary & for which variables are included on both sides</u> A.12(E) solve mathematical & scientific formulas, & other literal equations, for a specified variable <p style="text-align: center;">-----</p> Simple Inequalities A.5(B) solve linear inequalities in one variable, including those for which the application of the distributive property is necessary & for which variables are included on both sides	p.106,108, 112 p.258,260 p.114
6 days	Linear Functions <ul style="list-style-type: none"> Relations and Functions (1-6, 1-7) A.12A, A.12B Graphs of Functions (1-8) <u>A.3C</u>, <u>A.2A</u> (2 days) Graphing Linear Equations (3-1) <u>A.3C</u> (2 days) <p style="text-align: center;">-----CFA #4-----</p>	Linear Functions A.12(A) decide whether relations represented verbally, tabularly, graphically, & symbolically define a function A.12(B) evaluate functions, expressed in function notation, given one or more elements in their domains <u>A.3(C) graph linear functions on the coordinate plane & identify key features, including x-intercept, y-intercept, zeros, & slope, in mathematical & real-world problems</u> <u>A.2(A) determine the domain & range of a linear function in mathematical problems; determine reasonable domain & range values for real-world situations, both continuous & discrete; & represent domain & range using inequalities</u>	p.240; 242; 244; 246 p.63;65;67 p.3;5;9 p.245



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Unit Time	2 nd Grading Period {9 weeks – 40 days}	Student Expectations {See Curriculum pages for Specificity}	EM
8 d a y s	Linear Functions continued... <ul style="list-style-type: none"> ● Zeros of Linear Functions (3-2) A.3C (2 days) ● Meaning of slope (3-3) A3.B (2 days) ● Direct variation (3-4) A.2D (1 day) 	Linear Functions continued... <u>A.3(B) calculate the rate of change of a linear function represented tabularly, graphically, or algebraically in context of mathematical & real-world problems</u> A.2(D) write and solve equations involving direct variation	p.52;54;58
			p.24;26
3 2 d a y s	Equations of Linear Functions <ul style="list-style-type: none"> ● Graphing in Slope Intercept form (4-1) A.3A, A.3C (8th grade review) (2 days) -----CFA #5----- ● Graphing Inequalities (5-6 LAB) A.2H, A.3D (2 days) ● Family of Linear graphs (4-1 LAB) A.3E, A.3C ● Writing Equations In Slope Intercept Form (4-2) A.2B, A.2C (building on 8th grade review- 8.5A & 8.5B) (2 days) -----CFA #6----- ● Writing Equations In Point-Slope Form (4-3) A.2B, A.2C, A.3A (2 days) ----- ● Parallel And Perpendicular Lines (4-4) A.2E, A.2F, A.2G (2 days) -----CFA #7----- ● Scatterplots and Lines of Fit (4-5) A.4C ● Association and Causation (4-5 LAB) A.4B ● Linear Regression (4-6) A.4A, A.4C (2 days) 	Equations of Linear Functions A.3(A) determine the slope of a line given a table of values, a graph, two points on the line, & an equation written in various forms, including $y = mx + b$, $Ax + By = C$, & $y - y_1 = m(x - x_1)$ A.3(D) graph the solution set of linear inequalities in two variables on the coordinate plane A.2(H) write linear inequalities in two variables given a table of values, a graph, & a verbal description <u>A.3(C) graph linear functions on the coordinate plane & identify key features, including x-intercept, y-intercept, zeros, & slope, in mathematical & real-world problems</u> A.3(E) determine the effects on the graph of the parent function $f(x) = x$ when $f(x)$ is replaced by $af(x)$, $f(x) + d$, $f(x - c)$, $f(bx)$ for specific values of a , b , c , and d <u>A.2(C) write linear equations in two variables given a table of values, a graph and a verbal description.</u> A.2(B) write linear equations in two variables in various forms, including $y = mx + b$, $Ax + By = C$, & $y - y_1 = m(x - x_1)$, given one point & the slope & given two points ----- A.2(E) write the equation of a line that contains a given point & is parallel to a given line A.2(F) write the equation of a line that contains a given point & is perpendicular to a given line A.2(G) write an equation of a line that is parallel or perpendicular to the x - or y -axis & determine whether the slope of the line is zero or undefined ----- A.4(B) compare & contrast association & causation in real-world problems A.4(C) write, with & without technology, linear functions that provide a reasonable fit to data to estimate solutions & make predictions for real-world problems A.4(A) calculate, using technology, the correlation coefficient between two quantitative variables & interpret this quantity as a measure of the strength of the linear association	p.46; 48
			p.68;72
			p.62;64;66
			p.76,80
			p.36;38
			p.28;30
			p.32
			p.100
			p.102;104
			p.94;98
10 days	PSAT Semester Review & Exam	Semester Review & Exam	

Source: The provisions of this §111.39 adopted to be effective September 10, 2012, 37 TexReg 7109

November 16, 2020

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Highlighted – Pre AP only



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Unit Time	3 rd Grading Period {10 weeks – 47 days}	Student Expectations {See Curriculum pages for Specificity}	EM
11 da ys	Systems of Linear Equations & Inequalities <ul style="list-style-type: none"> ● Graphing Systems Of Linear Equations (6-1) A. 3F, A.3G (2 days) ● Substitution (6-2) A.2I, A.5C (3 days) ● Elimination (6-3,6-4) A.2I, A.5C (3 days) ----CFA #8---- ● Systems of Inequalities (6-6) A.3H (1 day) 	Systems of Linear Equations & Inequalities <u>A.5(C) solve systems of two linear equations with two variables for mathematical & real-world problems</u> A.3(F) graph systems of two linear equations in two variables on the coordinate plane & determine the solutions if they exist A.3(G) estimate graphically the solutions to systems of two linear equations with two variables in real-world problems A.2(I) write systems of two linear equations given a table of values, a graph, & a verbal description A.3(H) graph the solution set of systems of two linear inequalities in two variables on the coordinate plane	p.82;84;86
			p.40;42;44
			p.88; 90
12 da ys	Exponents & Radicals <ul style="list-style-type: none"> ● Discovering Exponent Laws (7-1, 7-2) A.11B (3 days) ● Simplify radicals (10-2) (2 days) A.11A ----CFA #9---- ● Rational Exponents (7-3) A.11A, A.11B (2 days) ----CFA #10--- 	Exponents & Radicals 8.2(B) approximate the value of an irrational number, including π & square roots of numbers less than 225, & locate that rational number approximation on a number line. A.11(A) simplify numerical radical expressions involving square roots <u>A.11(B) simplify numeric & algebraic expressions using the laws of exponents, including integral & rational exponents</u> A.9(B) interpret the meaning of the values of a and b in exponential functions of the form $f(x) = ab^x$ in real-world	p.233
8 da ys	Exponential Functions <ul style="list-style-type: none"> ● Exponential Functions (7-5) A.9A, A.9D, A.9C (2 days) ● Growth And Decay (7-6) A.9B, A.9C (3 days) ----CFA #11 ---- ● Fitting Exponential Functions (7-6 LAB) A.9E (1 day) 	Exponential Functions A.9(C) write exponential functions in the form $f(x) = ab^x$ (where b is a rational number) to describe problems arising from mathematical & real-world situations, including growth & decay A.9(D) graph exponential functions that model growth & decay & identify key features, including y-intercept & asymptote, in mathematical & real-world problems A.9(A) determine the domain & range of exponential functions of the form $f(x) = ab^x$ & represent the domain & range using inequalities A.9(B) interpret the meaning of the values of a & b in exponential functions of the form $f(x) = ab^x$ in real-world problems A.9(E) write, using technology, exponential functions that provide a reasonable fit to data & make predictions for real-world problems	p.232
			p.236;238
			p.176;178
			p.182;186
			p.172; 174
10 da ys	Polynomials (Quadratic Expressions and Equations) <ul style="list-style-type: none"> ● {Intro to Quadratic on Coordinate Graph} Graphing Quadratic Functions (9-1) A.6A, A.7A {Modeling With Algebra Tiles} ● Adding and subtracting polynomials (LAB & 8-1) A.10A (2 days) ● Multiplying Polynomial by Binomial (8-2) {Modeling With Algebra Tiles} ● Multiplying Polynomials (8-3 & LAB) A.10B, A.10D (2 days) ● Special Products (8-4) A.10B, A.10E (2 days) ---- CFA #12 ---- 	Quadratic Expressions & Equations A.10(A) add & subtract polynomials of degree one & degree two A.10(B) multiply polynomials of degree one & degree two A.10(D) rewrite polynomial expressions of degree one & degree two in equivalent forms using the distributive property <u>A.8(A) solve quadratic equations having real solutions by factoring, taking square roots, completing the square, & applying the quadratic formula</u> {specificity includes modeling}	p.192; 194
			p.196; 200; 202
			p.212
			p.261; 218; 220; 224; 226

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5 da YS	<ul style="list-style-type: none"> ● Using Distributive Property-GCF (8-5) A.8A (2 days) <i>{Modeling With Algebra Tiles}</i> ● Factoring Trinomials (8-5 LAB) A.8A (2 days) 	<p>A.10(E) factor, if possible, trinomials with real factors in the form $ax^2 + bx + c$, including perfect square trinomials of degree two</p>	p.230
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Unit Time	4 th Grading Period {10 weeks – 48 days}	Student Expectations {See Curriculum pages for Specificity}	EM
12 da ys	<ul style="list-style-type: none"> ● (review factoring when solving quad) ● Solving Quadratics $a=1$ {Sum & Product pattern} (8-6) A.8A, A.10E (2 days) ● Solving Quadratics $a > 1$ (8-7) A.8A, A.10E (2 days) {Split the Middle} ● Difference of Squares (8-8) A.10F (2 days) ● Perfect squares (8-9) (2 days) A.10E ----CFA #13---- 	<p>Quadratic Expressions & Equations</p> <p>A.8(A) solve quadratic equations having real solutions by factoring, taking square roots, completing the square, & applying the quadratic formula <i>{specificity includes modeling}</i></p> <p>A.10(E) factor, if possible, trinomials with real factors in the form $ax^2 + bx + c$, including perfect square trinomials of degree two</p> <p>A.10(F) decide if a binomial can be written as the difference of two squares and, if possible, use the structure of a difference of two squares to rewrite the binomial</p>	<p>p.125; 127</p> <hr/> <p>p.140; 142; 144; 146</p> <hr/> <p>p.148</p> <hr/> <p>p.130; 132</p>
9 da ys + 6 da ys ST AA R Re vie w + 1 da y SI M + 1 En gli sh ST AA R	<p>Polynomials (Quadratic Functions and Equations)</p> <ul style="list-style-type: none"> ● Graphing Quadratic Functions {attributes including directrix} (9-1) A.6A, A.7A (3 days) ● Solving Quadratic Equations By Graphing (9-2) A.6C, A.7B, A.7A (1 day) ----CFA #14---- ● Transformations (Vertex Form) (9-3) A.6B, A.7C, A.7A (3 days) ● Analyzing Functions (vert align Alg2) (9-6) (2 days) <p style="background-color: yellow;">ELA I EOC/Algebra 1 SIM</p> <p>-----</p> <ul style="list-style-type: none"> ● Solving by Completing the square (9-4) A8.A (2 days) <i>*covered if time allows*</i> ● Solving by Quadratic Formula (9-5) A.8A (2 days) 	<p>Polynomials (Quadratic Functions and Equations)</p> <p>A.6(A) determine the domain & range of quadratic functions & represent the domain & range using inequalities</p> <p>A.7(A) graph quadratic functions on the coordinate plane & use the graph to identify key attributes, if possible, including x-intercept, y-intercept, zeros, maximum value, minimum values, vertex, & the equation of the axis of symmetry</p> <p>A.6(C) write quadratic functions when given real solutions & graphs of their related equations</p> <p>A.7(B) describe the relationship between the linear factors of quadratic expressions & the zeros of their associated quadratic functions</p> <p>A.6(B) write equations of quadratic functions given the vertex & another point on the graph, write the equation in vertex form ($f(x) = a(x - h)^2 + k$), & rewrite the equation from vertex form to standard form ($f(x) = ax^2 + bx + c$)</p> <p>A.8(B) write, using technology, quadratic functions that provide a reasonable fit to data to estimate solutions & make predictions for real-world problems</p> <p>A.7(C) determine the effects on the graph of the parent function $f(x) = x^2$ when $f(x)$ is replaced by $af(x)$, $f(x) + d$, $f(x - c)$, $f(bx)$ for specific values of a, b, c, & d</p> <p>A.8(A) solve quadratic equations having real solutions by factoring, taking square roots, completing the square, & applying the quadratic formula (highlighted – not yet been tested)</p>	<p>p.134; 138</p> <hr/> <p>p.170</p> <hr/> <p>p.150; 152; 154</p> <hr/> <p>p.156; 158; 162; 164; 168</p>

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= 17 days			
4days	State Testing	State Testing	
6days	Getting Ready for Geometry	Getting ready for Geometry/Algebra 2: 1. Simplifying radicals + rationalizing the denominator 2. Multiplying binomials 3. Solving eq variables both sides & distributive 4. Graphing from table 5. Graphing all forms of a line (standard, point-slope, slope intercept) 6. Attributes of quadratic function (graphing, labeling attributes, domain/range)	
8days		Final Exam Review & Final Exams	

5 days	<ul style="list-style-type: none"> ● Arithmetic Sequences(3-5) A.12D (1 day) ● Geometric Sequences (7-7) A.9C, A.12D (2 days) ● Recursive Formulas (7-8) A.12C, A.12D (1 day) 	<p>A.12(C) identify terms of arithmetic & geometric sequences when the sequences are given in function form using recursive processes</p> <p>A.12(D) write a formula for the nth term of arithmetic & geometric sequences, given the value of several of their terms</p>	p.250;252
4days	EOC Review	EOC Review	p.254,256
			CTD Reg18 GPS
6days	<ul style="list-style-type: none"> ● Simplifying Rational Expressions (11-3) ● Dividing Rational Expressions—canceling factors (11-4) A.10C ● Dividing Polynomials (11-5) A.10C (2 days) ● Curve Fitting: Quad Regression (9-6 LAB) A.8B <p>Scientific Notation (7-4) A.9B</p>	<p>A.10(C) determine the quotient of a polynomial of degree one & polynomial of degree two when divided by a polynomial of degree one & polynomial of degree two when the degree of the divisor does not exceed the degree of the dividend</p>	p.204; 208; 210

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