

Algebra I Scope and Sequence

Pacing Guide, MGH, Student Expectations

Pre-AP only topics highlighted

Unit Time	1 st Grading Period (8 weeks - 40 days)	Student Expectations {See Curriculum pages for Specificity}	EM
2 days	Review basic operations <ul style="list-style-type: none"> Real Numbers {Subsets, simplifying radicals} (0-2) Operations with Integers (0-3) 	Review basic operations <p>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.</p> <p>7.2(A) extend previous knowledge of sets & subsets using a visual representation to describe relationships between sets of rational numbers</p> <p>6.3(D) add, subtract, multiply, & divide integers fluently</p>	/
10 days	Exponents & Radicals <ul style="list-style-type: none"> Exponent Laws (7-1, 7-2) A.11B (3 days) Simplify radicals (10-2) (2 days) A.11A Rational Exponents (7-3) A.11A, A.11B (2 days) Scientific Notation (7-4) A.9B 	Exponents & Radicals <p>A.11(A) simplify numerical radical expressions involving square roots</p> <p><u>A.11(B) simplify numeric & algebraic expressions using the laws of exponents, including integral & rational exponents</u></p>	p.233 p.237;239
21 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) A.5A (3 days) Solve Equations with Absolute Value (2-5) – Pre AP only*Vertical Alignment to Algebra 2 Literal Equations (2-8) A.12E (2 days) <p>-----</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) Solving Compound Inequalities (5-4) (1-2 days) 	Linear Equations <p><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></p> <p>A.12(E) solve mathematic & scientific formulas, & other literal equations, for a specified variable</p> <p>-----</p> Simple Inequalities <p>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>	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) A.3C, A.2A (2 days) Graphing Linear Equations (3-1) A.3C (2 days) 	Linear Functions <p>A.12(A) decide whether relations represented verbally, tabularly, graphically, & symbolically define a function</p> <p>A.12(B) evaluate functions, expressed in function notation, given one or more elements in their domains</p> <p><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></p> <p><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>	p.240; 242; 244; 246 p.63;65;67 p.3;5;9 p.245
1 day	1st grading period CBA		



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Unit Time	2 nd Grading Period (8 weeks-42.5 days)	Student Expectations {See Curriculum pages for Specificity}	EM
8 days	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) • Arithmetic Sequences(3-5) A.12D (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 A.12(D) write a formula for the nth term of arithmetic & geometric sequences, given the value of several of their terms	p.52;54;58 p.24;26
18 days	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) • 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) • Writing Equations In Point-Slope Form (4-3) A.2B, A.2C, A.3A (2 days) <p style="text-align: center;">-----</p> <ul style="list-style-type: none"> • Parallel And Perpendicular Lines (4-4) A.2E, A.2F, A.2G (2 days) • 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 <p style="text-align: center;">-----</p> 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	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) 	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 <u>A.2(I) write systems of two linear equations given a table of values, a graph, & a verbal description</u>	p. p.82;84;86 p.40;42;44
6 days	PSAT Semester Review & Exam	Semester Review & Exam	



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Unit Time	3 rd Grading Period (9 weeks – 42 days)	Student Expectations {See Curriculum pages for Specificity}	EM
7 days	Systems of Linear Equations & Inequalities <ul style="list-style-type: none"> Review Methods Of Solving Linear Systems (1 day) Applying Systems of Linear Equations (6-5) A.2I, A.5C (2 days) Systems of Inequalities (6-6) A.3H (1 day) 	Systems of Linear Equations & Inequalities A.2I , A.5C see above A.3(H) graph the solution set of systems of two linear inequalities in two variables on the coordinate plane	p.40;42;44 p.88;90
14 days	Exponential Functions <ul style="list-style-type: none"> Exponent Rules Review (7.3) A.11B (2 days) Exponential Functions (7-5) A.9A, A.9D, A9C (2 days) Growth And Decay (7-6) A.9B, A.9C (3 days) Fitting Exponential Functions (7-6 LAB) A.9E (1 day) Geometric Sequences (7-7) A.9C, A.12D (2 days) Recursive Formulas (7-8) A.12C, A.12D (1 day) 	Exponential Functions Review A.11B , A.11A 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 A.12(C) identify terms of arithmetic & geometric sequences when the sequences are given in function form using recursive processes A.12(D) write a formula for the nth term of arithmetic & geometric sequences, given the value of several of their terms	p.232 p.236;238 p.176;178 p.182;186 p.172; 174 p.188,190 p.250;252 p.254,256
21 days	Quadratic Expressions and Equations {Modeling With Algebra Tiles} <ul style="list-style-type: none"> 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) Using Distributive Property-GCF (8-5) A.8A (2 days) ----- {Modeling With Algebra Tiles} <ul style="list-style-type: none"> Factoring Trinomials (8-5 LAB) A.8A (3 days) 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 	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} A.10(E) factor, if possible, trinomials with real factors in the form $ax^2 + bx + c$, including perfect square trinomials of degree two 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.192; 194 p.196; 200; 202 p.212 p.261; 218; 220; 224; 226 p.230



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Unit Time	4 th Grading Period (10 weeks – 48 days) 37 days before Alg. 1 EOC testing	Student Expectations {See Curriculum pages for Specificity}	EM		
30 days {2 days for English I STAAR}	Polynomials (Quadratic Functions and Equations) <ul style="list-style-type: none"> • Graphing Quadratic Functions (9-1) A.6A, A.7A (3 days) • Solving Quadratic Equations By Graphing (9-2) A.6C, A.7B, A.7A (1 day) • Transformations (Vertex Form) (9-3) A.6B, A.7C, A.7A (3 days) • Analyzing Functions (vert align Alg2) (9-6) (2 days) • Curve Fitting: Quad Regression (9-6 LAB) A.8B ----- • Solving by Completing the square (9-4) A8.A (2 days) • Solving by Quadratic Formula (9-5) A.8A (2 days) ----- • Simplifying Rational Expressions (11-3) • Dividing Rational Expressions – canceling factors (11-4) A.10C • Dividing Polynomials (11-5) A.10C (2 days) ELA I EOC	Polynomials (Quadratic Functions and Equations) A.6(A) determine the domain & range of quadratic functions & represent the domain & range using inequalities <u>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</u> A.6(C) write quadratic functions when given real solutions & graphs of their related equations A.7(B) describe the relationship between the linear factors of quadratic expressions & the zeros of their associated quadratic functions 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 ($f(x) = ax^2 + bx + c$) A.8(B) write, using technology, quadratic functions that provide a reasonable fit to data to estimate solutions & make predictions for real-world problems 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 <u>A.8(A) solve quadratic equations having real solutions by factoring, taking square roots, completing the square, & applying the quadratic formula</u> (highlighted – not yet been tested) 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.125; 127 p.140; 142; 144; 146 p.148 p.130; 132 p.134; 138 p.170 p.150; 152; 154 p.156; 158; 162; 164; 168 p.204; 208; 210		
		4 days	EOC Review	EOC Review	CTD Reg18 GPS
		5 days	State Testing	State Testing	
		7 days	Final Review and Exam	Final Review and Exam	

