

# Alg2 Texas TEKS/STAAR/EOC (First Semester)

Legend:

Example **3[R]-2A.5(B)**

- 3, The reporting category
- [R], Either Readiness or Supporting
- 2A.5, The TEKS
- (B) Expectation

**[P]** indicates a prerequisite skill

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## Unit 1: Solving linear equations and inequalities

Lesson 01: Solving linear equations **1[S]-2A.4(a)**

Lesson 02: Solving linear inequalities **2[R]-2A.2(a); 2[R]-2A.2(b)**

Lesson 03: \*Solving combined (compound) inequalities **2[R]-2A.2(a); 2[R]-2A.2(b)**

Lesson 04: Converting words to algebraic expressions **2[R]-2A.2(a); 2[R]-2A.2(b)**

Lesson 05: Solving word problems with linear equations **1[S]-2A.4(a)**

Lesson 06: \*Graphing calculator solutions of absolute value problems (See Calculator Appendix D & associated video, and Enrichment Topic 2A.) **1[S]-2A.4(a)**

Unit 1 review

Test: Unit 1 test

## Unit 2: Slope; Solving a linear system of two equations

Lesson 01: Slopes of lines: four different points of view **1[S]-2A.4(a)**

Lesson 02: Two forms for the equation of a line **1[R]-2A.3(a)**

Lesson 03: Graphical meaning of the solution to two linear equations **1[R]-2A.3(a)**

Lesson 04: Algebraic solutions (elimination & substitution) for two linear equations **2[R]-2A.3(b); 2[R]-2A.3(c)**

Lesson 05: Word problems involving two linear equations **2[R]-2A.3(b); 2[R]-2A.3(c)**

Lesson 06: Graphing calculator solutions of linear systems (See Calculator Appendix C and associated video.) **2[R]-2A.3(b)**

Unit 2 review

Test: Unit 2 test

### **Unit 3: Graphing linear inequalities in two variables**

Lesson 01: Graphing single linear inequalities in two variables **2[R]-2A.3(a)**

Lesson 02: Graphing systems of linear inequalities in two variables **1[S]-2A.2(a)**

Lesson 03: \*Graphing calculator- graphing systems of linear inequalities in two variables (See Calculator Appendices B & E and associated videos. Also see Enrichment Topic B.) **2[R]-2A.3(b); 2[R]-2A.3(c)**

Cumulative review, unit 3

Unit 3 review

Test: Unit 3 test

### **Unit 4: Multiplying and Factoring Polynomials**

Lesson 01: Simple polynomial multiplication and factoring **2[R]-2A.2(a)**

Lesson 02:  $(a + b)^2$ ,  $(a - b)^2$ ,  $(a - b)(a + b)$ --- multiplying and factoring **2[R]-2A.2(a)**

Lesson 03: More trinomial factoring (Leading coefficient not one) **2[R]-2A.2(a)**

Lesson 04: Solving equations by factoring **2[R]-2A.2(a)**

Lesson 05: \*Solving word problems with factoring **2[R]-2A.3(b); 2[R]-2A.3(c)**

Lesson 06: \*Binomial expansion theorem **2[R]-2A.2(a)**

Cumulative review, unit 4

Unit 4 review

Unit 4 test

### **Unit 5: Exponents and radicals**

Lesson 01: Exponent rules (This lesson will likely span two days) **2[S]-2A.2(a)**

Lesson 02: Negative exponents **2[S]-2A.2(a)**

Lesson 03: More exponent problems **2[S]-2A.2(a)**

Lesson 04: Simplifying radical expressions **2[S]-2A.9(a)**

Lesson 05: Fractional exponents **2[S]-2A.2(a)**

Lesson 06: \*Solving equations having rational & variable exponents **2[S]-2A.2(a)**

Lesson 07: \*Solving radical equations **5[S]-2A.9(d); 5[S]-2A.9(f)**

Lesson 8: Rationalizing denominators **5[R]-2A.9(f)**

Cumulative review, unit 5

Unit 5 review

Unit 5 test

### **Unit 6: Completing the square, the quadratic formula**

Lesson 1: Solving equations by taking the square root **5[S]-2A.9(d)**

Lesson 2: Completing the square **5[S]-2A.9(d); 4[S]-2A.5(e)**

Lesson 3: \*Deriving the quadratic formula **3[S]-2A.4(b)**

Lesson 4: Using the quadratic formula **3[S]-2A.8(a); 3[S]-2A.8(b); 3[S]-2A.8(c); 3[S]-2A.8(a); 3[S]-2A.8(d)**

Lesson 5: Determining the nature of the roots; the discriminant **3[S]-2A.8(b)**

Cumulative review, unit 6

Unit 6 review

Unit 6 test

### **Unit 7: Relations and functions**

Lesson 1: Representations of relations and functions **[P]**

Lesson 2: Independent & dependent variables; Domain & range (See Calculator Appendix F and associated video.) **1[R]-2A.1(a); 1[R]-2A.1(b)**

Lesson 3: Function notation; Evaluating functions **1[R]-2A.1(a); 1[R]-2A.1(b)**

Lesson 4: \*Even and odd functions (See Calculator Appendix G and associated video.) **1[R]-2A.1(a); 1[R]-2A.1(b)**

Lesson 5: Putting it all together: x-axis & y-axis associations **1[R]-2A.1(a); 1[R]-2A.1(b)**

Cumulative review, unit 7

Unit 7 review

Unit 7 test

### **Unit 8: Analyzing and graphing quadratic functions**

Lesson 1: Forms of quadratic functions **1[S]-2A.4(a)**

Lesson 2: Finding intercepts and graphing quadratic equations **4[R]-2A.7(a); 4[R]-2A.7(b); 4[R]-2A.7(c);**

Lesson 3: \*Analysis of quadratic functions **4[R]-2A.7(a); 4[R]-2A.7(b); 4[R]-2A.7(c);**

Lesson 4: Using graphs to analyze quadratic transformations (See Calculator Appendix A and associated video.) **4[R]-2A.7(a); 4[R]-2A.7(b); 4[R]-2A.7(c);**

Lesson 5: \*Writing quadratic functions **4[R]-2A.7(a); 4[R]-2A.7(b); 4[R]-2A.7(c);**

Lesson 6: Analyzing quadratic functions with a graphing calculator (See Calculator Appendices A, I, & J and associated videos.) **4[R]-2A.7(a); 4[R]-2A.7(b); 4[R]-2A.7(c);**

Lesson 7: \*Quadratic inequalities **3[R]-2A.6(a)**

Cumulative review, unit 8

Unit 8 review

Unit 8 test

### **Unit 9: Reflections, translations, and inverse functions**

Lesson 1: Reflection fundamentals **[P]**

Lesson 2: Translations and reflection of relations **[P]**

Lesson 3: \*Inverse function fundamentals **5[S]-2A.9(g); 1[S]-2A.4(c)**

Lesson 4: \*Determining if two relations are inverses of each other (See Calculator Appendix H and associated video.) **5[S]-2A.9(g); 1[S]-2A.4(c)**

Cumulative review, unit 9

Unit 9 review

Unit 9 test

**Semester summary**

Semester review

Semester test

**Enrichment Topics****Topic A:** Analysis of absolute value inequalities **1[S]-2A.4(a); 2[R]-2A.3(c)****Topic B:** Linear Programming **2[R]-2A.3(a); 2[R]-2A.3(c)****Topic C:** Point-slope and intercept forms of a line **1[S]-2A.4(a); 1[S]-2A.4(b)****Topic D:** The summation operator,  $\Sigma$ **Topic E:** An unusual look at probability **[P]****Topic F:** Rotations **[P]****Topic G:** Absolute value parent functions **1[S]-2A.4(a)****Topic H:** Dimension changes affecting perimeter, area, and volume **[P]****Topic I:** Algebraic solution to three equations in three variables **2[R]-2A.3(b); 2[R]-2A.3(c)****Topic J:** Algebraic solution to quadratic systems of equations **2[R]-2A.3(b); 2[R]-2A.3(c); 3[R]-2A.8(a); 3[R]-2A.8(d)****Topic K:** Derivation of the sine law**Topic L:** Derivation of the cosine law**Topic M:** Tangent composite function derivations**Topic N:** Locating the vertex of a standard-form parabola **3[R]-2A.6(B); 3[R]-2A.8(C)****Topic O:** Algebraic manipulation of inverse trig functions**Topic P:** Logarithm theorem derivations **7[R]-2A.11(A); 7[S]-2A.11(B); 7[S]-2A.11(C)****Topic Q:** Arithmetic and geometric sum formulas**Topic R:** Converting general form conics to standard form **4[S]-2A.8(a); 4[S]-2A.8(b); 4[S]-2A.8(c); 4[S]-2A.8(d)****Topic S:** Conic section applications **4[S]-2A.7(b)**

**Topic T:** A close look at composite functions

Restrictions on the domain **1[R]-2A.1(a); 1[R]-2A.1(b)**

**Topic U:** “Box” method of trinomial factoring **2[R]-2A.2(a)**