

Alg2 Texas TEKS/STAAR/EOC (Second 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

Unit 10: Exponential functions

Lesson 1: Exponential functions (variables in the exponent) **7[R]-2A.11(A); 7[R]-2A.11(F); 6[S]-2A.10(A); 7[R]-2A.11(C);**

Lesson 2: Exponential functions; the natural number e ; exponential inequalities **7[S]-2A.11(D); 7[R]-2A.11(F); 7[S]-2A.11(E);**

Lesson 3: Applications of exponential functions **7[S]-2A.11(D); 7[R]-2A.11(F)**

Unit 11: Logarithms

Lesson 1: Logarithm fundamentals **7[R]-2A.11(A); 7[S]-2A.11(D)**

Lesson 2: Inverse of exponential function, log function, log graphs **7[R]-2A.11(A); 7[S]-2A.11(D); 7[S]-2A.11(C); 6[S]-2A.10(A);**

Lesson 3: Logarithm theorems **7[S]-2A.11(D)**

Lesson 4: Solving log equations **7[S]-2A.11(C); 7[S]-2A.11(D)**

Lesson 5: Change of base; Using logs to solve exponential equations & inequalities **7[S]-2A.11(D); 7[R]-2A.11(F); 7[R]-2A.11(A);**

Lesson 6: Logarithm inequalities **7[S]-2A.11(D); 3[R]-2A.6(A)**

Lesson 7: Applications of logarithms **7[S]-2A.11(D); 7[R]-2A.11(F); 3[R]-2A.8(A)**

Unit 12: Rational expressions

Lesson 1: Dividing polynomials; the remainder theorem **2[S]-2A.2(A)**

Lesson 2: Simplifying rational expressions (dividing & multiplying) **2[S]-2A.2(A)**

Lesson 3: Adding and subtracting rational expressions **2[S]-2A.2(A)**

Lesson 4: Factoring $a^3 - b^3$, more rational expressions **2[S]-2A.2(A)**

Lesson 5: Complex fractions **6[S]-2A.10(C); 6[R]-2A.10(F)**

Lesson 6: Direct and inverse variation **6[R]-2A.10(F); 6[S]-2A.10(G)**

Lesson 7: Rational and irrational numbers **6[S]-2A.10(C); 6[R]-2A.10(F)**

Unit 13: Regression

Lesson 1: Linear regression (See Calculator Appendices M & N and associated videos.)
1[R]-2A.1(B)

Lesson 2: Higher order regression (See Calculator Appendices M & N and associated videos.) **1[R]-2A.1(B)**

Unit 14: Complex numbers

Lesson 1: Imaginary number fundamentals; Adding and subtracting complex numbers
2[S]-2A.2(B)

Lesson 2: Multiplying and dividing complex numbers **2[S]-2A.2(B)**

Lesson 3: Quadratic equations with complex number solutions **2[S]-2A.2(A); 2[S]-2A.2(B)**

Unit 15: Permutations, combinations, probability, and statistics

Lesson 1: Fundamental principle of counting, factorial, permutations **[P]**

Lesson 2: Permutations formula, special permutations **[P]**

Lesson 3: Combinations **[P]**

Lesson 4: Sample space, probability **[P]**

Lesson 5: Fundamental principle of counting revisited **[P]**
 Theoretical vs experimental probability **[P]**

Lesson 6: Statistics **[P]**

Lesson 7: Statistics with a graphing calculator **[P]**

Unit 16: Parent functions

Lesson 1: Quadratic parent function **1[R]-2A.4(A)**

Lesson 2: Cubic parent function **1[R]-2A.4(A)**

Lesson 3: Given a graph, determine the function **1[R]-2A.4(A); 1[R]-2A.1(A); 3[R]-2A.6(A)**

Lesson 4: Square root parent function **1[R]-2A.4(A); 5[S]-2A.9(E); 5[S]-2A.9(C); 5[S]-2A.9(G);**

Lesson 5: Exponential parent function **1[R]-2A.4(A)**

Lesson 6: Logarithm parent function **1[R]-2A.4(A)**

Lesson 7: Reciprocal ($1/x$) parent function **1[S]-2A.1(A); 6[S]-2A.10(A); 4[S]-2A.5(C)**

Unit 17: Conic sections

Lesson 1: Circle **4[S]-2A.5(B); 4[S]-2A.5(C)**

Lesson 2: Parabola (directrix and focus) **4[S]-2A.5(A); 4[S]-2A.5(B); 4[S]-2A.5(B)**

Lesson 3: Ellipse (foci, major & minor axes) **4[S]-2A.5(B); 4[S]-2A.5(C)**

Lesson 4: Hyperbola (foci, asymptotes, major & minor axes) **4[S]-2A.5(B); 4[S]-2A.5(C)**

Lesson 5: Recognizing conic sections **4[S]-2A.5(D)**

Unit 18: Matrices and determinants

Lesson 1: Introduction to matrices (adding, subtracting, equality, multiplying by a scalar)
1[R]-2A.1(B); 2[R]-2A.3(B); 4[S]-2A.5(A)

Lesson 2: Matrix multiplication, mixed operations **2[R]-2A.3(B)**

Lesson 3: Determinants,, inverses, identity matrix **2[R]-2A.3(B)**

Lesson 4: Matrix and determinant operations on the calculator **2[R]-2A.3(B); 1[S]-2A.4(C); 6[S]-2A.10(A)**

Lesson 5: Expressing a system of equations as a matrix eq. Solving systems **2[R]-2A.3(A); 2[R]-2A.3(B)**

Lesson 6: Solving systems of equations with Cramer's rule. **2[R]-2A.3(A); 2[R]-2A.3(B)**

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, Σ

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)**