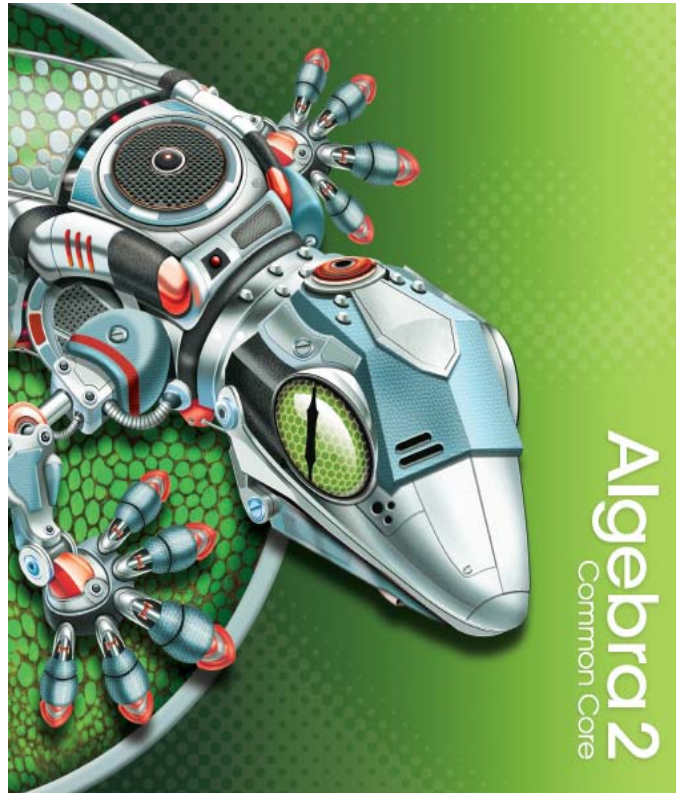


A Correlation of
Pearson Mathematics
Algebra 2
Common Core, ©2015



To the
Arizona's College and Career Ready
Standards
Mathematics - Algebra II

A Correlation of Pearson High School Mathematics Algebra 2 Common Core ©2015 To Arizona's College and Career Ready Standards – Mathematics – Algebra II

Introduction

This document demonstrates how ***Pearson Algebra 2, Common Core Edition ©2015*** meets the standards of the Arizona's College and Career Ready Standards, Mathematics, Algebra 1. Correlation references are to the pages of the Student and Teacher's Editions, and Concept Bytes within the Teacher's Editions.

Pearson Algebra 2, Common Core Edition ©2015 balances conceptual understanding, procedural fluency, and the application of mathematics to solve problems and formulate models.

- Each lesson begins with Interactive Learning, the Solve It!, which immediately engages students in their daily learning according to the Standards for Mathematical Practice.
- The second step of the lesson, Guided Instruction, uses visual learning principles and a Thinking/Reasoning strand (seen in the Know/Need/Plan and Think/Plan/Write boxes) to introduce the Essential Understanding of the lesson by teaching THROUGH and FOR problem-solving.
- In the third step of the lesson, the Lesson Check, Do you know HOW? exercises measure students' procedural fluency, while Do you UNDERSTAND? problems measure students' conceptual understanding.
- In the fourth step of the lesson, Practice problems are designed to develop students' fluency in the Content Standards and proficiency with the Mathematical Practices. Real-world STEM problems as well as problems designed to elicit the use of one or more of the Standards for Mathematical Practice are clearly labeled in the Practice step of the lesson.
- The final phase of the lesson, Assess and Remediate, features a Lesson Quiz to measure students' understanding of lesson concepts. By utilizing the balanced and proven-effective approach of Pearson's 5-step lesson design, you can teach with confidence.

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To Arizona’s College and Career Ready Standards – Mathematics – Algebra II**

Arizona’s College and Career Ready Standards Mathematics – High School Algebra II	Pearson High School Mathematics Algebra 2, ©2015
Number and Quantity: The Real Number System (N-RN) Extend the properties of exponents to rational exponents.	
HS.N-RN.A.1. Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. <i>For example, we define $5^{1/3}$ to be the cube root of 5 because we want $(5^{1/3})^3 = 5^{(1/3)3}$ to hold, so $(5^{1/3})^3$ must equal 5.</i> Connections: 11-12.RST.4; 11-12.RST.9; 11-12.WHST.2d	SE/TE: 6.4: 381-388 TE: Concept Byte: 360, 6.4: 388A-388B
HS.N-RN.A.2. Rewrite expressions involving radicals and rational exponents using the properties of exponents.	SE/TE: 6.4: 381-388 TE: 6.4: 388A-388B
Number and Quantity: Quantities ★ (N-Q) Reason qualitatively and use units to solve problems.	
HS.N-Q.A.2. Define appropriate quantities for the purpose of descriptive modeling. ★ Connection: <i>SSHS-S5C5-01</i>	SE/TE: 1.3: 18-24, 2.1: 60-67, 3.2: 142-148 TE: 1.3: 24A-24B, 2.1: 67A-67B, 3.2: 148A-148B
Number and Quantity: The Complex Number System (N-CN) Perform arithmetic operations with complex numbers.	
HS.N-CN.A.1. Know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.	SE/TE: 4.8: 248-255 TE: 4.8: 255A-255B
HS.N-CN.A.2. Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers. Connection: 11-12.RST.4	SE/TE: 4.8: 248-255 TE: 4.8: 255A-255B
Number and Quantity: The Complex Number System (N-CN) Use complex numbers in polynomial identities and equations.	
HS.N-CN.C.7. Solve quadratic equations with real coefficients that have complex solutions.	SE/TE: 4.8: 248-255, 5.5: 312-317, 5.6: 319-324 TE: 4.8: 255A-255B, 5.5: 317A-317B, 5.6: 324A-324B

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To Arizona's College and Career Ready Standards – Mathematics – Algebra II**

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Algebra: Seeing Structure in Expressions (A-SSE) Interpret the structure of expressions.	
HS.A-SSE.A.2. Use the structure of an expression to identify ways to rewrite it. <i>For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.</i>	SE/TE: 4.4: 216-223, 5.3: 296-302, 6.1: 361-366, 6.2: 367-373, 6.3: 374-380 TE: 4.4: 223A-223B, 5.3: 302A-302B, 6.1: 366A-366B, 6.2: 373-373B, 6.3: 380A-380B
Algebra: Seeing Structure in Expressions (A-SSE) Write expressions in equivalent forms to solve problems.	
HS.A-SSE.B.3. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. ★ Connections: 9-10.WHST.1c; 11-12.WHST.1c	SE/TE: 4.5: 226-231, 7.1: 434-441 TE: 4.5: 231A-231B, 7.1: 441A-441B
c. Use the properties of exponents to transform expressions for exponential functions. <i>For example the expression 1.15^t can be rewritten as $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.★</i>	SE/TE: 7.1: 434-441 TE: 7.1: 441A-441B
HS.A-SSE.B.4. Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. <i>For example, calculate mortgage payments.</i> ★ Connection: 11-12.RST.4	SE/TE: 9.5: 595-601, Concept Byte: 594 TE: 9.5: 601A-601B
Algebra: Arithmetic with Polynomials and Rational Expressions (A-APR) Understand the relationship between zeros and factors of polynomials.	
HS.A-APR.B.2. Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a , the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.	SE/TE: 5.4: 303-310 TE: 5.4: 310A-310B
HS.A-APR.B.3. Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	SE/TE: 4.5: 226-231, 5.2: 288-295, 5.6: 319-324, Concept Byte: 325 TE: 4.5: 231A-231B, 5.2: 295A-295B, 5.6: 324A-324B

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To Arizona's College and Career Ready Standards – Mathematics – Algebra II**

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Algebra: Arithmetic with Polynomials and Rational Expressions (A-APR) Use polynomial identities to solve problems.	
HS.A-APR.C.4. Prove polynomial identities and use them to describe numerical relationships. <i>For example, the polynomial identity $(x^2+y^2)^2 = (x^2- y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.</i>	SE/TE: Concept Byte: 318
Algebra: Arithmetic with Polynomials and Rational Expressions (A-APR) Rewrite rational expressions.	
HS.A-APR.D.6. Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.	SE/TE: 5.4: 303-310, 8.6: 542-548 TE: 5.4: 310A-310B, 8.6: 548A-548B
Algebra: Creating Equations ★ (A-CED) Create equations that describe numbers or relationships.	
HS.A-CED.A.1. Create equations and inequalities in one variable and use them to solve problems. <i>Include equations arising from linear and quadratic functions, and simple rational and exponential functions. ★</i>	SE/TE: 1.4: 26-32, 1.5: 33-40, 1.6: 41-48, 4.1: 194-201, 4.5: 226-231, 8.6: 542-548 TE: 1.4: 32A-32B, 1.5: 40A-40B, 1.6: 48A-48B, 4.1: 201A-201B, 4.5: 231A-231B, 8.6: 548A-548B
Algebra: Reasoning with Equations and Inequalities ★ (A-REI) Understand solving equations as a process of reasoning and explain the reasoning.	
HS.A-REI.A.1. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.	SE/TE: 1.4: 26-32, 1.5: 33-40 TE: 1.4: 32A-32B, 1.5: 40A-40B
HS.A-REI.A.2. Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	SE/TE: 6.5: 390-397, 8.6: 542-548 TE: 6.5: 397A-397B, 8.6: 548A-548B

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Algebra: Reasoning with Equations and Inequalities ★ (A-REI) Solve equations and inequalities in one variable.	
HS.A-REI.B.4. Solve quadratic equations in one variable.	SE/TE: 4.5: 226-231, 4.6: 233-239, 4.7: 240-247, 4.8: 248-255 TE: 4.5: 231A-231B, 4.6: 239A-239B, 4.7: 247A-247B, 4.8: 255A-255B
b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b .	SE/TE: 4.5: 226-231, 4.6: 233-239, 4.7: 240-247, 4.8: 248-255 TE: 4.5: 231A-231B, 4.6: 239A-239B, 4.7: 247A-247B, 4.8: 255A-255B
Algebra: Reasoning with Equations and Inequalities ★ (A-REI) Solve systems of equations.	
HS.A-REI.C.6. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables. Connection: <i>ETHS-S6C2-03</i>	SE/TE: 3.1: 134-141, 3.2: 142-148, 3.3: 149-155 TE: 3.1: 141A-141B, 3.2: 148A-148B, 3.3: 155A-155B
HS.A-REI.C.7. Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. <i>For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.</i>	SE/TE: 4.9: 258-264 TE: 4.9: 264A-264B
Algebra: Reasoning with Equations and Inequalities ★ (A-REI) Represent and solve equations and inequalities graphically.	
HS.A-REI.D.11. Explain why the x -coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions. ★ Connection: <i>ETHS-S6C2-03</i>	SE/TE: 3.1: 134-141, 5.3: 296-302, 7.5: 469-476, Concept Byte: 484-485, 8.6: 542-548 TE: 3.1: 141A-141B, 5.3: 302A-302B, 7.5: 476A-476B, 8.6: 548A-548B

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To Arizona's College and Career Ready Standards – Mathematics – Algebra II**

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Functions: Interpreting Functions (F-IF) Understand the concept of a function and use of function notation.	
HS.F-IF.A.3. Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. <i>For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1, f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.</i>	SE/TE: 9.2: 572-577, 9.3: 580-586, Concept Byte: 578 TE: 9.2: 577A-577B, 9.3: 586A-586B
Functions: Interpreting Functions (F-IF) Interpret functions that arise in applications in terms of context.	
HS.F-IF.B.4. For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. <i>Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.</i> ★ Connections: <i>ETHS-S6C2.03; 9-10.RST.7; 11-12.RST.7</i>	SE/TE: 2.3: 74-80, 2.5: 92-98, 4.1: 194-201, 4.2: 202-208, 4.3: 209-214, 5.1: 280-287, 5.8: 331-338, Concept Byte: 459-460, 8.2: 507-514, 13.1: 828-834, 13.4: 851-858, 13.5: 861-867 TE: 2.3: 80A-80B, 2.5: 98A-98B, 4.1: 201A-201B, 4.2: 208A-208B, 4.3: 214A-214B, 5.1: 287A-287B, 5.8: 338A-338B, 8.2: 514A-514B, 13.1: 834A-834B, 13.4: 858A-858B, 13.5: 867A-867B
HS.F-IF.B.6. Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. Connections: <i>ETHS-S1C2-01; 9-10.RST.3★</i>	SE/TE: 2.5: 92-98, 4.1: 194-201, 4.2: 202-208, Concept Byte: 215, 5.8: 331-338 TE: 2.5: 98A-98B, 4.1: 201A-201B, 4.2: 208A-208B, 5.8: 338A-338B
Functions: Interpreting Functions (F-IF) Analyze functions using different representations.	
HS.F-IF.C.7. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. ★	SE/TE: 7.1: 434-441, 7.2: 442-450, 7.3: 451-458, 13.4: 851-858, 13.5: 861-867, 13.6: 868-874, 13.7: 875-882, 13.8: 883-890 TE: 7.1: 441A-441B, 7.2: 450A-450B, 7.3: 458A-458B, 13.4: 858A-858B, 13.5: 867A-867B, 13.6: 874A-874B, 13.7: 882A-882B, 13.8: 890A-890B

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c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior. ★ Connections: <i>ETHS-S6C1-03</i> ; <i>ETHS-S6C2-03</i>	SE/TE: 5.1: 280-287, 5.2: 288-295, 5.9: 339-345 TE: 5.1: 287A-287B, 5.2: 295A-295B, 5.9: 345A-345B
e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude. ★ Connections: <i>ETHS-S6C1-03</i> ; <i>ETHS-S6C2-03</i>	SE/TE: 7.1: 434-441, 7.2: 442-450, 7.3: 451-458, 13.4: 851-858, 13.5: 861-867, 13.6: 868-874, 13.7: 875-882, 13.8: 883-890 TE: 7.1: 441A-441B, 7.2: 450A-450B, 7.3: 458A-458B, 13.6: 868A-858B, 13.5: 867A-867B, 13.6: 874A-874B, 13.7: 882A-882B, 13.8: 890A-890B
Functions: Interpreting Functions (F-IF) Analyze functions using different representations.	
HS.F-IF.C.8. Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. Connection: <i>11-12.RST.7</i>	SE/TE: 4.5: 226-231, 4.6: 233-239, 5.2: 288-295, 5.5: 312-317, 5.9: 339-345 TE: 4.5: 231A-231B, 4.6: 239A-239B, 5.2: 295A-295B, 5.5: 317A-317B, 5.9: 345A-345B
b. Use the properties of exponents to interpret expressions for exponential functions. <i>For example, identify percent rate of change in functions such as $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)^{12t}$, $y = (1.2)^{t/10}$, and classify them as representing exponential growth or decay.</i> Connection: <i>11-12.RST.7</i>	SE/TE: 7.1: 435-441, 7.4: 462-468, 7.5: 469-476, 7.6: 478-483 TE: 7.1: 441A-441B, 7.4: 468A-468B, 7.5: 476A-476B, 7.6: 483A-483B
HS.F-IF.C.9. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). <i>For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.</i> Connections: <i>ETHS-S6C1-03</i> ; <i>ETHS-S6C2-03</i> ; <i>9-10.RST.7</i>	SE/TE: 2.4: 81-88, 4.2: 202-208, 5.2: 288-295, 5.5: 312-317, 5.9: 339-345 TE: 2.4: 88A-88B, 4.2: 208A-208B, 5.2: 295A-295B, 5.5: 317A-317B, 5.9: 345A-345B

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To Arizona’s College and Career Ready Standards – Mathematics – Algebra II**

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Functions: Building Functions (F-BF) Build a function that models a relationship between two quantities.	
HS.F-BF.A.1. Write a function that describes a relationship between two quantities. ★ Connections: <i>ETHS-S6C1-03; ETHS-S6C2-03</i>	SE/TE: 2.2: 68-73, 2.5: 92-98, 4.2: 202-208, 5.2: 288-295, 6.6: 398-404, 7.2: 442-450, 8.2: 507-514, 8.3: 515-523 TE: 2.2: 73A-73B, 2.5: 98A-98B, 4.2: 208A-208B, 5.2: 295A-295B, 6.6: 404A-404B, 7.2: 450A-450B, 8.2: 514A-514B, 8.3: 523A-523B
a. Determine an explicit expression, a recursive process, or steps for calculation from a context. ★ Connections: <i>ETHS-S6C1-03; ETHS-S6C2-03; 9-10.RST.7; 11-12.RST.7</i>	SE/TE: 9.1: 564-571, 9.2: 572-577, 9.3: 580-586, 9.4: 587-593 TE: 9.1: 571A-571B, 9.2: 577A-577B, 9.3: 586A-586B, 9.4: 593A-593B
b. Combine standard function types using arithmetic operations. <i>For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.</i> ★ Connections: <i>ETHS-S6C1-03; ETHS-S6C2-03</i>	SE/TE: 6.6: 398-404, 7.2: 442-450, 8.3: 515-523 TE: 6.6: 404A-404B, 7.2: 450A-450B, 8.3: 523A-523B
Functions: Building Functions (F-BF) Build a function that models a relationship between two quantities. <i>continued</i>	
HS.F-BF.A.2. Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms. ★	SE/TE: 9.1: 564-571, 9.2: 572-577, 9.3: 580-586, 9.4: 587-593 TE: 9.1: 571A-571B, 9.2: 577A-577B, 9.3: 586A-586B, 9.4: 593A-593B

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Functions: Building Functions (F-BF) Build new functions from existing functions.	
HS.F-BF.B.3. Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. <i>Include recognizing even and odd functions from their graphs and algebraic expressions for them.</i> Connections: <i>ETHS-S6C2-03; 11-12.WHST.2e</i>	SE/TE: 2.6: 99-106, 2.7: 107-113, 4.1: 194-201, 5.9: 339-345, 8.2: 507-514 TE: 2.6: 106A-106B, 2.7: 113A-113B, 4.1: 201A-201B, 5.9: 345A-345B, 8.2: 514A-514B
HS.F-BF.B.4 Find inverse functions. Connection: <i>ETHS-S6C2-03</i>	SE/TE: 6.7: 405-412, 7.3: 451-458 TE: 6.7: 412A-412B, 7.3: 458A-458B
a. Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse. <i>For example, $f(x) = 2x^3$ or $f(x) = (x+1)/(x-1)$ for $x \neq 1$.</i>	SE/TE: 6.7: 405-412, 7.3: 451-458 TE: 6.7: 412A-412B, 7.3: 458A-458B
Functions: Linear, Quadratic, and Exponential Models ★ (F-LE) Construct and compare linear, quadratic, and exponential models and solve problems.	
HS.F-LE.A.2. Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table). ★ Connections: <i>ETHS-S6C1-03; ETHS-S6C2-03; 11-12.RST.4; SSHS-S5C5-03</i>	SE/TE: 2.5: 92-98, 2.6: 99-106, 7.1: 434-441, 7.2: 442-450, 9.2: 572-577, 9.3: 580-586 TE: 2.5: 98A-98B, 2.6: 106A-106B, 7.1: 441A-441B, 7.2: 450A-450B, 9.2: 577A-577B, 9.3: 586A-586B
HS.F-LE.A.4. For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a , c , and d are numbers and the base b is 2, 10, or e ; evaluate the logarithm using technology. ★ Connections: <i>ETHS-S6C1-03; ETHS-S6C2-03; 11-12.RST.3</i>	SE/TE: 7.5: 469-476, 7.6: 478-483 TE: 7.5: 476A-476B, 7.6: 483A-483B
Functions: Linear, Quadratic, and Exponential Models ★ (F-LE) Interpret expressions for functions in terms of the situation they model.	
HS.F-LE.B.5. Interpret the parameters in a linear or exponential function in terms of a context. ★ Connections: <i>ETHS-S6C1-03; ETHS-S6C2-03; SSHS-S5C5-03; 11-12.WHST.2e</i>	SE/TE: 2.2: 68-73, 2.3: 74-80, 2.4: 81-88, 7.1: 434-441, 7.2: 442-450 TE: 2.2: 73A-73B, 2.3: 80A-80B, 2.4: 88A-88B, 7.1: 441A-441B, 7.2: 450A-450B

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Functions: Trigonometric Functions ★ (F-TF) Extend the domain of trigonometric functions using the unit circle.	
HS.F-TF.A.1. Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.	SE/TE: 13.3: 844-850 TE: Concept Byte: 843, 13.3: 850A-850B
HS.F-TF.A.2. Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle. Connections: <i>ETHS-S1C2-01; 11-12.WHST.2b; 11-12.WHST.2e</i>	SE/TE: 13.4: 851-858, 13.5: 861-867, 13.6: 868-874 TE: 13.4: 858A-858B, Concept Byte: 850, 13.5: 867A-867B, 13.6: 874A-874B
Functions: Trigonometric Functions ★ (F-TF) Model periodic phenomena with trigonometric functions.	
HS.F-TF.B.5. Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline. ★ Connection: <i>ETHS-S1C2-01</i>	SE/TE: 13.4: 851-858, 13.5: 861-867, 13.6: 868-874, 13.7: 875-882 TE: 13.4: 858A-858B, 13.5: 867A-867B, 13.6: 874A-874B, 13.7: 882A-882B
Functions: Trigonometric Functions ★ (F-TF) Prove and apply trigonometric identities.	
HS.F-TF.C.8. Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to find $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ given $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ and the quadrant of the angle. Connection: <i>11-12.WHST.1a-1e</i>	SE/TE: 14.1: 904-910 TE: 14.1: 910A-910B
Geometry: Expressing Geometric Properties with Equations (G-GPE) Translate between the geometric description and the equation for a conic section.	
HS.G-GPE.A.2. Derive the equation of a parabola given a focus and directrix. Connections: <i>ETHS-S1C2-01; 11-12.RST.4</i>	SE/TE: 10.3: 630-636, 10.6: 653-660 TE: 10.3: 636A-636B, 10.6: 660A-660B

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Statistics and Probability: Interpreting Categorical and Quantitative Data ★(S-ID) Summarize, represent, and interpret data on a single count or measurement variable.	
HS.S-ID.A.4. Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve. ★ Connections: <i>ETHS-S1C2-01; ETHS-S6C2-03; 11-12.RST.7; 11-12.RST.8; 11-12.WRT.1b</i>	SE/TE: 11.7: 719-724, 11.0: 739-745 TE: 11.7: 724A-724B, 11.0: 745A-745B
Statistics and Probability: Interpreting Categorical and Quantitative Data ★ (S-ID) Summarize, represent, and interpret data on a two categorical and quantitative variables.	
HS.S-ID.B.6. Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. ★ Connections: <i>SCHS-S1C2-05; SCHS-S1C3-01; ETHS-S1C2-01; ETHS-S1C3-01; ETHS-S6C2-03</i>	SE/TE: 2.5: 92-98, 4.3: 209-214, 5.8: 331-338, Concept Byte: 459 TE: 2.5: 98A-98B, 4.3: 214A-214B, 5.8: 338A-338B
a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. <i>Use given functions or chooses a function suggested by the context. Emphasize linear, quadratic, and exponential models.</i> ★ Connection: <i>11-12.RST.7</i>	SE/TE: 2.5: 92-98, 4.3: 209-214, 5.8: 331-338, 7.2: 442-450 TE: 2.5: 98A-98B, 4.3: 214A-214B, 5.8: 338A-338B, 7.2: 450A-450B
Statistics and Probability: Making Inferences and Justifying Conclusions ★ (S-IC) Understand and evaluate random processes underlying statistical experiments.	
HS.S-IC.A.1. Understand statistics as a process for making inferences to be made about population parameters based on a random sample from that population. ★	SE/TE: 11.8: 725-730 TE: 11.8: 730A-730B
Statistics and Probability: Making Inferences and Justifying Conclusions ★ (S-IC) Understand and evaluate random processes underlying statistical experiments.	
HS.S-IC.A.2. Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. <i>For example, a model says a spinning coin will fall heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?</i> ★ Connections: <i>ETHS-S6C2-03; 9-10.WHST.2d; 9-10.WHST.2f</i>	SE/TE: Concept Byte: 694-695, 11.5: 703-709 TE: 11.5: 709A-709B

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Statistics and Probability: Making Inferences and Justifying Conclusions ★ (S-IC) Make inferences and justify conclusions from sample surveys, experiments, and observational studies.	
HS.S-IC.B.3. Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each. ★ Connections: <i>11-12.RST.9; 11-12.WHST.2b</i>	SE/TE: 11.8: 725-730 TE: 11.8: 730A-730B
HS.S-IC.B.4. Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling. ★ Connections: <i>ETHS-S6C2-03; 11-12.RST.9; 11-12.WHST.1e</i>	SE/TE: 11.8: 725-730, Concept Byte: 746-747, Concept Byte: 748-749 TE: 11.8: 730A-730B
HS.S-IC.B.5. Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant. ★ Connections: <i>ETHS-S6C2-03; 11-12.RST.4; 11-12.RST.5; 11-12.WHST.1e</i>	SE/TE: 11.8: 725-730, Concept Byte: 748-749 TE: 11.8: 730A-730B
HS.S-IC.B.6. Evaluate reports based on data. ★ Connections: <i>11-12.RST.4; 11-12.RST.5; 11-12.WHST.1b; 11-12.WHST.1e</i>	SE/TE: 11.6: 711-718, 11.7: 719-724, 11.8: 725-730 TE: 11.6: 718A-718B, 11.7: 724A-724B, 11.8: 730A-730B
Statistics and Probability: Conditional Probability and the Rules of Probability ★ (S-CP) Understand independence and conditional probability and use them to interpret data.	
HS.S-CP.A.1. Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events (“or,” “and,” “not”). ★ Connection: <i>11-12.WHST.2e</i>	SE/TE: 11.2: 681-687, 11.3: 688-693, 11.4: 696-702 TE: 11.2: 687A-687B, 11.3: 693A-693B, 11.4: 702A-702B

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<p>HS.S-CP.A.2. Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent. ★ Connection: <i>11-12.WHST.1e</i></p>	<p>SE/TE: 11.3: 688-693 TE: 11.3: 693A-693B</p>
<p>HS.S-CP.A.3. Understand the conditional probability of A given B as $P(A \text{ and } B)/P(B)$, and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B. ★ Connections: <i>11-12.RST.5; 11-12.WHST.1e</i></p>	<p>SE/TE: 11.4: 696-702 TE: 11.4: 702A-702B</p>
<p>HS.S-CP.A.4. Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. <i>For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.</i> ★ Connections: <i>ETHS-S6C2-03; 11-12.RST.4; 11-12.RST.9; 11-12.WHST.1e</i></p>	<p>SE/TE: 11.4: 696-702 TE: 11.4: 702A-702B</p>
<p>Statistics and Probability: Conditional Probability and the Rules of Probability ★ (S-CP) Understand independence and conditional probability and use them to interpret data.</p>	
<p>HS.S-CP.A.5. Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. <i>For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.</i> ★ Connections: <i>11-12.RST.4; 11-12.RST.5; 11-12.WHST.1e</i></p>	<p>SE/TE: 11.3: 688-690, 11.4: 696-702 TE: 11.3: 693A-693B, 11.4: 702A-702B</p>

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Statistics and Probability: Conditional Probability and the Rules of Probability ★(S-CP) Use the rules of probability to compute probabilities of compound events in a uniform probability model.	
<p>HS.S-CP.B.6. Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model. ★ Connections: <i>ETHS-S1C2-01; ETHS-S6C2-03; 11-12.RST.9; 11-12.WHST.1b; 11-12.WHST.1e</i></p>	<p>SE/TE: 11.4: 696-702 TE: 11.4: 702A-702B</p>
<p>HS.S-CP.B.7. Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model. ★ Connections: <i>ETHS-S1C2-01; ETHS-S6C2-03; 11-12.RST.9</i></p>	<p>SE/TE: 11.3: 688-693 TE: 11.3: 693A-693B</p>