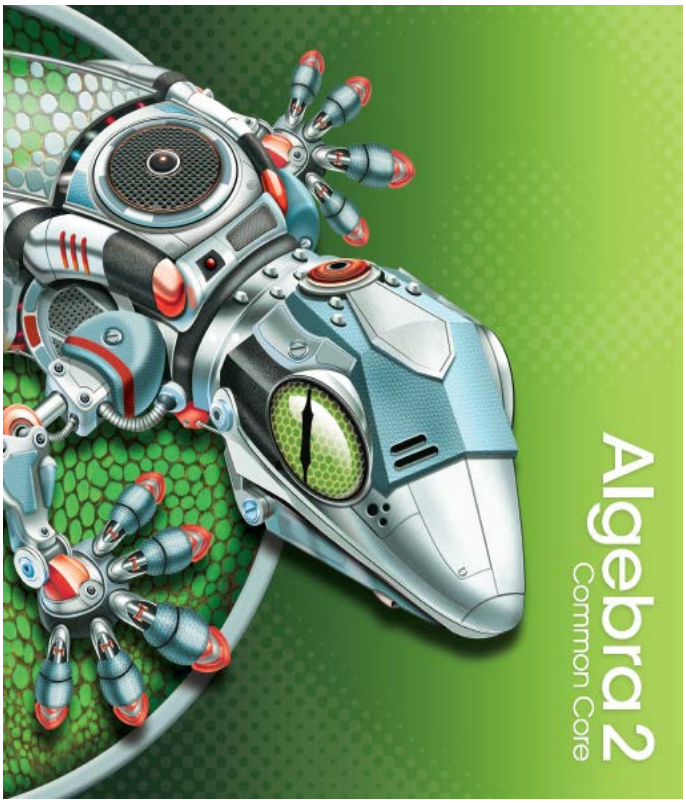
A Correlation of

Pearson
Algebra 2
Common Core
©2015



to the

Common Core State Standards for Mathematics High School

PARRC Model Content Frameworks Mathematics Algebra 2

A Correlation of Pearson Algebra 2 Common Core
to the Common Core State Standards for Mathematics - High School
PARRC Model Content Frameworks, Mathematics Algebra 2

Introduction

This document demonstrates how ***Pearson Algebra 2 Common Core* ©2015** meets the Common Core State Standards for Mathematics High School, PARRC Model Content Frameworks Mathematics Algebra 1. Correlation references are to the pages of the Student and Teacher's Editions, Concept Bytes, and Learning Resources within the Teacher's Editions.

***Pearson Algebra 2 Common Core* ©2015** is a rigorous, flexible, and data-driven high school math program designed to ensure high school students master the Common Core State Standards. The program's 5-step lesson design was built for the requirements of the Common Core, and independent research has proven the program's lesson design is effective for all learners.

***Pearson Algebra 2 Common Core* ©2015** balances conceptual understanding, procedural fluency, and the application of mathematics to solve problems and formulate models. The lesson design of the program was built specifically to meet the "rigor" criterion of the Common Core State Standards.

- 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. **Interactive Learning** and **Guided Instruction** are both deliberately designed to address the essential elements in the Common Core conceptual category of mathematical modeling.

- 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 the Common Core State Standards with confidence.

A Correlation of Pearson Algebra 2 Common Core
to the Common Core State Standards for Mathematics - High School
PARRC Model Content Frameworks, Mathematics Algebra 2

Common Core State Standards for Mathematics - High School PARRC Model Content Frameworks Mathematics Algebra 2	Pearson Algebra 2 Common Core ©2015
Number and Quantity	
The Real Number System N –RN	
Extend the properties of exponents to rational exponents.	
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. 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.	**SE/TE: 6.4:** 381-388 **TE: Concept Byte:** 360, **6.4:** 388A-388B
2. Rewrite expressions involving radicals and rational exponents using the properties of exponents.	**SE/TE: 6.4:** 381-388 **TE: 6.4:** 388A-388B
Quantities★ N -Q	
Reason quantitatively and use units to solve problems.	
2. Define appropriate quantities for the purpose of descriptive modeling.	**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
The Complex Number System N -CN	
Perform arithmetic operations with complex numbers.	
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
2. Use the relation $i^2 = –1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	**SE/TE: 4.8:** 248-255 **TE: 4.8:** 255A-255B
Use complex numbers in polynomial identities and equations.	
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

A Correlation of Pearson Algebra 2 Common Core
to the Common Core State Standards for Mathematics - High School
PARRC Model Content Frameworks, Mathematics Algebra 2

Common Core State Standards for Mathematics - High School PARRC Model Content Frameworks Mathematics Algebra 2	**Pearson Algebra 2 Common Core ©2015**
Algebra	
Seeing Structure in Expressions A-SSE	
Interpret the structure of expressions	
2. Use the structure of an expression to identify ways to rewrite it. 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 $(x^2 - y^2)(x^2 + y^2)$.	**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
Write expressions in equivalent forms to solve problems	
3. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.★	**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. 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%.	**SE/TE: 7.1:** 434-441 **TE: 7.1:** 441A-441B
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. For example, calculate mortgage payments.★	**SE/TE: 9.5:** 595-601, **Concept Byte:** 594 **TE: 9.5:** 601A-601B
Arithmetic with Polynomials and Rational Expressions A -APR	
Understand the relationship between zeros and factors of polynomials	
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
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
Use polynomial identities to solve problems	
4. Prove polynomial identities and use them to describe numerical relationships. For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.	**SE/TE: Concept Byte:** 318

Common Core State Standards for Mathematics - High School PARRC Model Content Frameworks Mathematics Algebra 2	**Pearson Algebra 2 Common Core ©2015**
Rewrite rational expressions	
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
Creating Equations★ A -CED	
Create equations that describe numbers or relationships	
1. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.	**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
Reasoning with Equations and Inequalities A -RE I	
Understand solving equations as a process of reasoning and explain the reasoning	
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
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
Solve equations and inequalities in one variable	
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 ± 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

Common Core State Standards for Mathematics - High School PARRC Model Content Frameworks Mathematics Algebra 2	**Pearson Algebra 2 Common Core ©2015**
Solve systems of equations	
6. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	**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
7. Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.	**SE/TE: 4.9:** 258-264 **TE: 4.9:** 264A-264B
Represent and solve equations and inequalities graphically	
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.★	**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
Functions	
Interpreting Functions F-IF	
Understand the concept of a function and use function notation	
3. Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.	**SE/TE: 9.2:** 572-577, **9.3:** 580-586, **Concept Byte:** 578 **TE: 9.2:** 577A-577B, **9.3:** 586A-586B
Interpret functions that arise in applications in terms of the context	
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. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.★	**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

Common Core State Standards for Mathematics - High School PARRC Model Content Frameworks Mathematics Algebra 2	**Pearson Algebra 2 Common Core ©2015**
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.★	**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
Analyze functions using different representations	
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
c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.	**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.	**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
8. Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.	**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. 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.	**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

Common Core State Standards for Mathematics - High School PARRC Model Content Frameworks Mathematics Algebra 2	**Pearson Algebra 2 Common Core ©2015**
9. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.	**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
Building Functions F-BF	
Build a function that models a relationship between two quantities	
1. Write a function that describes a relationship between two quantities.★	**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.	**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. 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.	**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
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
Build new functions from existing functions	
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. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	**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

Common Core State Standards for Mathematics - High School PARRC Model Content Frameworks Mathematics Algebra 2	**Pearson Algebra 2 Common Core ©2015**
4. Find inverse functions.	**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. For example, $f(x) = 2x^3$ or $f(x) = (x+1)/(x-1)$ for $x \neq 1$.	**SE/TE: 6.7:** 405-412, **7.3:** 451-458 **TE: 6.7:** 412A-412B, **7.3:** 458A-458B
Linear, Quadratic, and Exponential Models★ F –LE	
Construct and compare linear, quadratic, and exponential models and solve problems	
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).	**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
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.	**SE/TE: 7.5:** 469-476, **7.6:** 478-483 **TE: 7.5:** 476A-476B, **7.6:** 483A-483B
Interpret expressions for functions in terms of the situation they model	
5. Interpret the parameters in a linear or exponential function in terms of a context.	**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
Trigonometric Functions F-TF	
Extend the domain of trigonometric functions using the unit circle	
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
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.	**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

★ indicates modeling standards

SE = Student Edition

TE = Teacher's Edition

Common Core State Standards for Mathematics - High School PARRC Model Content Frameworks Mathematics Algebra 2	**Pearson Algebra 2 Common Core ©2015**
Model periodic phenomena with trigonometric functions	
5. Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.★	**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
Prove and apply trigonometric identities	
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.	**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	
2. Derive the equation of a parabola given a focus and directrix.	**SE/TE: 10.3:** 630-636, **10.6:** 653-660 **TE: 10.3:** 636A-636B, **10.6:** 660A-660B
Statistics and Probability	
Interpreting Categorical and Quantitative Data S-ID	
Summarize, represent, and interpret data on a single count or measurement variable	
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.	**SE/TE: 11.7:** 719-724, **11.0:** 739-745 **TE: 11.7:** 724A-724B, **11.0:** 745A-745B
Recognize possible associations and trends in the data.	
6. Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.	**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. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.	**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

Common Core State Standards for Mathematics - High School PARRC Model Content Frameworks Mathematics Algebra 2	**Pearson Algebra 2 Common Core ©2015**
Making Inferences and Justifying Conclusions S-IC	
Understand and evaluate random processes underlying statistical experiments	
1. Understand statistics as a process for making inferences about population parameters based on a random sample from that population.	**SE/TE: 11.8:** 725-730 **TE: 11.8:** 730A-730B
2. Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?	**SE/TE: Concept Byte:** 694-695, **11.5:** 703-709 **TE: 11.5:** 709A-709B
Make inferences and justify conclusions from sample surveys, experiments, and observational studies	
3. Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	**SE/TE: 11.8:** 725-730 **TE: 11.8:** 730A-730B
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.	**SE/TE: 11.8:** 725-730, **Concept Byte:** 746-747, **Concept Byte:** 748-749 **TE: 11.8:** 730A-730B
5. Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.	**SE/TE: 11.8:** 725-730, **Concept Byte:** 748-749 **TE: 11.8:** 730A-730B
6. Evaluate reports based on data.	**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
Conditional Probability and the Rules of Probability S-CP	
Understand independence and conditional probability and use them to interpret data	
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").	**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

Common Core State Standards for Mathematics - High School PARRC Model Content Frameworks Mathematics Algebra 2	**Pearson Algebra 2 Common Core ©2015**
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.	**SE/TE: 11.3:** 688-693 **TE: 11.3:** 693A-693B
3. Understand the conditional probability of *A* given *B* as *P*(*A* 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*.	**SE/TE: 11.4:** 696-702 **TE: 11.4:** 702A-702B
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. 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.	**SE/TE: 11.4:** 696-702 **TE: 11.4:** 702A-702B
5. Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.	**SE/TE: 11.3:** 688-690, **11.4:** 696-702 **TE: 11.3:** 693A-693B, **11.4:** 702A-702B
Use the rules of probability to compute probabilities of compound events in a uniform probability model	
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.	**SE/TE: 11.4:** 696-702 **TE: 11.4:** 702A-702B
7. Apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in terms of the model.	**SE/TE: 11.3:** 688-693 **TE: 11.3:** 693A-693B