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Pearson Algebra 1, Geometry, Algebra 2 Common Core

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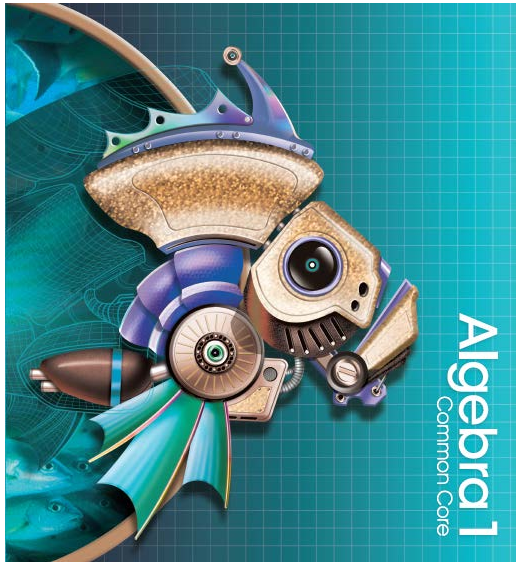

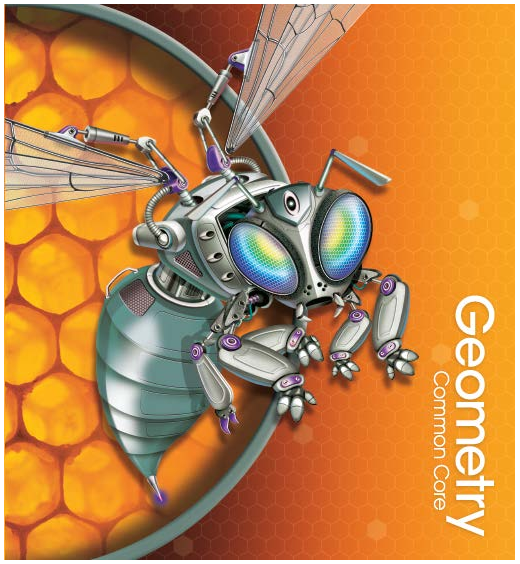

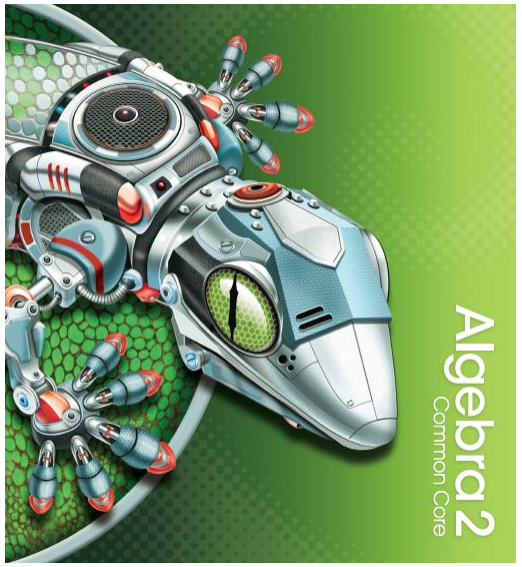

To the

North Carolina High School Mathematics Alignment to Traditional Text - MATH I

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Introduction

This document demonstrates how ***Pearson Algebra 1, Geometry, Algebra 2 Common Core Edition,* ©2015** meets the standards of the North Carolina High School Mathematics Alignment to Traditional Text – Math I. 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 1, Geometry, Algebra 2 Common Core Edition* ©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 1, Geometry, Algebra 2 Common Core Edition ©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.

Common Core State Standards for Mathematics	Math I Concept(s)/Skill	Pearson Algebra 1, Geometry, Algebra 2 Common Core, ©2015
N.RN.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.*	• Properties of rational exponents with numerator of 1	**Algebra 1** **SE/TE:** 418-421, 424, 425-429, 433-436, 439-442, 474-478, 540-542, 608-610, 720-722 **TE:** 423A-423B, 431A-431B, 438A-438B, 445A-445B
N.RN.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents.	• Radicals to exponent form • Exponents to radicals	**Algebra 1** **SE/TE:** 418-421, 447, 448-450, 474-478, 480-482, 540-542, 720-722, 792-797 **TE:** 423A-423B, 452A-452B **Geometry** **SE/TE:** 1, 23, 79, 349, 399 **TE:** T889, T890
N.Q.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.	• Using units to understand problems and guide solutions • Choose units appropriately • Interpret units in the context of the problem • Choose and interpret scale and origin in graphs and data displays.	**Algebra 1** **SE/TE:** 116-119, 122-123, 124-127, 152-156, 158-160, 228-230, 253-257, 283-286, 288-290, 480-482, 658-660, 732-735, 746-749, 786-790, 792-797 **TE:** 121A-121B, 129A-129B, 259A-259B, 737A-737B, 751A-751B **Geometry** **SE/TE:** 59-64, 70-74, 76-78 **TE:** 67A-67B

Common Core State Standards for Mathematics	Math I Concept(s)/Skill	Pearson Algebra 1, Geometry, Algebra 2 Common Core, ©2015
N.Q.2 Define appropriate quantities for the purpose of descriptive modeling.	• Define appropriate quantities for descriptive modeling.	**Algebra 1** **SE/TE:** 116-119, 152-156, 158-160, 178-181, 222-226, 228-230, 262-264, 283-286, 301-304, 353-356, 608-610, 738-742, 786-790 **TE:** 121A-121B, 183A-183B, 267A-267B, 306A-306B, 744A-744B
N.Q.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	• Choose a level of accuracy within context	**Algebra 1** **SE/TE:** 137-141, 144-148, 152-156, 228-230, 358-360, 387-390, 408-410 **TE:** 143A-143B, 150A-150B, 392A-392B
A.SSE.1a Interpret parts of an expression, such as terms, factors, and coefficients.	• Interpret parts of an expression limited to linear, quadratic and exponential (with integer exponents)	**Algebra 1** **SE/TE:** 4-7, 10-13, 46-49, 68-72, 74-77, 228-230, 262-264, 274-278, 283-286, 308-311, 353-356, 512-515, 518-520, 523-526, 529-531 **TE:** 9A-9B, 15A-15B, 52A-52B, 267A-267B, 281A-281B, 314A-314B, 517A-517B, 522A-522B, 528A-528B, 533A-533B **Algebra 2** **SE/TE:** 288-293, 527-530 **TE:** 295A-295B, 533A-533B
A.SSE.1b Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret P(1+r)n as the product of P and a factor not depending on P.	• Interpret the meaning of grouped together parts of an expression as a single entity	**Algebra 1** **SE/TE:** 207-210, 222-226, 288-290, 523-526, 529-531, 535-538 **TE:** 213A-213B, 528A-528B, 533A-533B **Algebra 2** **SE/TE:** 41-45, 434-439, 442-447, 451-456 527-530 **TE:** 48A-48B, 441A-441B, 450A-450B, 458A-458B, 533A-533B

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(+) Standards needed for advanced courses such as calculus
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A.SSE.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 $(x^2 - y^2)(x^2 + y^2)$.	• Rewriting expressions by, combining like terms, expanding and factoring	**Algebra 1** **SE/TE:** 511, 523-526, 529-531, 535-538, 658-660 **TE:** 528A-528B, 533A-533B **Algebra 2** **SE/TE:** 216-221, 296-300, 361-364, 367-370, 374-378, 527-530 **TE:** 223A-223B, 302A-302B, CB 360, 366A-366B, 373A-373B, 380A-380B, 533A-533B
A.SSE.3a Factor a quadratic expression to reveal the zeros of the function it defines.	• Factor a quadratic expression • Interpret zeros of a quadratic function within context	**Algebra 1** **SE/TE:** 568-570, 603-606 **TE:** 572A-572B **Geometry** **SE/TE:** 439 **Algebra 2** **SE/TE:** 216-221, 226-229 **TE:** 223A-223B, 231A-231B
A.APR.1 Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	• Add, subtract and multiply polynomial limited to linear a quadratic expressions	**Algebra 1** **SE/TE:** 486-489, 492-494, 497, 498-501, 504-507, 535-538, 540-542, 608-610, 658-660, 720-722, 792-797 **TE:** 491A-491B, 496A-496B, 503A-503B, 509A-509B, **Algebra 2** **SE/TE:** 280-285, 288-293, 296-300, 303-308 **TE:** 287A-287B, 295A-295B, 302A-302B, 310A-310B

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A.CED.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.	• Create and solve equations and inequalities with one variable limited to linear and exponential.	**Algebra 1** **SE / TE:** 53-56, 81-85, 88-91, 94-97, 102-105, 109-112, 124-127, 130-133, 171-174, 178-181, 186-189, 200-204, 207-210, 214-218, 691-695 **TE:** 58A-58B, 87A-87B, 93A-93B, 100A-100B, 108A-108B, 114A-114B, 129A-129B, 136A-136B, 177A-177B, 183A-183B, 192A-192B, 206A-206B, 213A-213B, 220A-220B, 697A-697B **Geometry** **SE / TE:** 323, 346-348, 439, 440-444, 480-482 **TE:** 447A-447B **Algebra 2** **SE / TE:** 26-30, 33-37, 41-45, 194-198, 226-229, 542-545 **TE:** 32A-32B, 40A-40B, 48A-48B, 201A-201B, 231A-231B, 548A-548B

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A.CED.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	• Create and graph equations with two or more variables limiting to linear, quadratic and exponential (integer inputs)	**Algebra 1** **SE/TE:** 60, 61-64, 262-264, 282-286, 301-304, 308-311, 315-318, 322-325, 353-356, 460-463, 546-549, 553-556, 573, 698-702, 713 **TE:** 66A-66B, 267A-267B, 306A-306B, 314A-314B, 320A-320B, 328A-328B, 466A-466B, 552A-552B, 558A-558B, 704A-704B **Geometry** **SE/TE:** 189, 191, 193, 197, 210, 257, 431, 467, 798, 800, 801 **TE:** T69, 196A, 204B, 803B **Algebra 2** **SE/TE:** 68-71, 74-78, 81-86, 92-96, 114-118, 134-138, 142-145, 202-206, 434-439, 442-447, 498-503, 507-512 **TE:** 73A-73B, 80A-80B, 88A-88B, 98A-98B, 120A-120B, 141A-141B, 148A-148B, 208A-208B, CB 232, 441A-441B, 450A-450B, 505A-505B, 514A-514B
A.CED.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.	• Represent constraints by equations or inequalities and by systems of equations an inequalities focus on linear functions • Interpret solutions	**Algebra 1** **SE/TE:** 37, 387-390, 394-397, 408-410, 596-599, 603-606 **TE:** 392A-392B, 399A-399B, 601A-601B **Geometry** **SE/TE:** 49, 323 **Algebra 2** **SE/TE:** 134-138, 142-145, 149-152, 157-160, 258-261 **TE:** 141A-141B, 148A-148B, 155A-155B, 162A-162B, CB 163, 264A-264B, CB 484

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A.CED.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law V = IR to highlight resistance R.	• Solving multivariable formulas or literal equations for a specific variable	**Algebra 1** **SE/TE:** 109-112, 152-156, 158-160, 228-230, 540-542, 561-563, 603-606, 658-660 **TE:** 114A-114B, 566A-566B **Geometry** **SE/TE:** 698, 699-703, **TE:** 707A-707B **Algebra 2** **SE/TE:** 26-30, 390-394, 498-503 **TE:** 32A-32B, 397A-397B, 505A-505B
A.REI. 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.	• Using mathematical properties to justify each step when solving simple equations	**Algebra 1** **SE/TE:** 59, 80, 88-91, 94-97, 101, 102-105, 109-112, 152-156, 158-160, 228-230, 288-290 **TE:** 93A-93B, 100A-100B, 108A-108B, 114A-114B **Geometry** **SE/TE:** 798 **TE:** 251B, 264B **Algebra 2** **SE/TE:** 26-30 **TE:** 32A-32B
A.REI.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	• Solving one variable linear equations and inequalities, including coefficients	**Algebra 1** **SE/TE:** 88-91, 94-97, 102-105, 124-127, 130-133, 152-156, 164-167, 171-174, 178-181, 184, 185, 186-189, 194-197, 200-204, 222-226 **TE:** 93A-93B, 100A-100B, 108A-108B, 129A-129B, 136A-136B, 170A-170B, 177A-177B, 183A-183B, 192A-192B, 199A-199B, 206A-206B

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A.REI.5 Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.	• Prove that the a system and a multiple of the same system have the same solution • Combining equations maintain inequality and hence elimination work	**Algebra 1** **SE/TE:** 378-381, 408-410 **TE:** 384A-384B **Algebra 2** **SE/TE:** 142-145 **TE:** 148A-148B
A.REI.6 Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	• Solving systems by substitution and elimination	**Algebra 1** **SE/TE:** 364-367, 371, 372-375, 385-386, 387-390, 408-410, 412-414, 540-542, 658-660 **TE:** 369A-369B, 377A-377B, 392A-392B, **Geometry** **SE/TE:** 257, 258-261, 273-276 **TE:** 264A-264B **Algebra 2** **SE/TE:** 134-138, 142-145, 149-152 **TE:** 141A-141B, 148A-148B, 155A-155B
A.REI.10 Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).	• Graph of an equation represent all the solutions limited to linear and exponential	**Algebra 1** **SE/TE:** 240-243, 246-248, 253-257, 283-286, 480-482, 720-722 **TE:** 245A-245B, 251A-251B, 259A-259B **Algebra 2** **SE/TE:** 258-261 **TE:** 264A-264B

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A.REI.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.★	• Solving systems using function notation focus on linear and exponential	**Algebra 1** **SE/TE:** 260-261, 370, 596-599, 603-606 **TE:** 601A-601B **Algebra 2** **SE/TE:** 258-261 **TE:** 264A-264B
A.REI.12 Graph the solutions to a linear inequality in two variables as a halfplane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	• Graph solution to a linear inequality in two variables and recognize solutions as a half plane • Graph system of inequalities and recognize the solution as the intersection of the corresponding half planes	**Algebra 1** **SE/TE:** 394-397, 400-402, 406, 408-410, 412-414, 540-542, 658-660 **TE:** 399A-399B, 405A-405B **Algebra 2** **SE/TE:** 149-152 **TE:** 155A-155B
F.IF.1 Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then f(x) denotes the output of f corresponding to the input x. The graph of f is the graph of the equation y = f(x).	• Domain and range of a function • Understand the one to one and many to one nature of a function • Use function notation to write an equation	**Algebra 1** **SE/TE:** 268-271, 283-286, 288-290, 412-414, 720-722 **TE:** 273A-273B **Algebra 2** **SE/TE:** 68-71 **TE:** 73A-73B

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F.IF.2 Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	• Use, evaluate and interpret statements written in function notation focusing on linear and exponential functions	**Algebra 1** **SE/TE:** 268-271, 283-286, 358-360 **TE:** 273A-273B **Algebra 2** **SE/TE:** 60-64 **TE:** 67A-67B
F.IF.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 ≥ 1.		**Algebra 1** **SE/TE:** 274-278, 283-286, 288-290, 608-610 **TE:** 281A-281B **Algebra 2** **SE/TE:** 572-575,580-583 **TE:** 577A-577B,CB 578,586A-586B
F.IF.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.★	• Interpret key features of graphs and tables • Given verbal description, sketch graphs given key features focus on but not limited to linear exponential and quadratic functions	**Algebra 1** **SE/TE:** 234-237, 240-243, 246-249**,** 283-286, 308-311, 315-318, 322-325, 353-356, 453-456, 474-478, 480-482, 546-549, 553-556, 603-606, 705-710 **TE:** 239A-239B, 245A-245B, 251A-251B, 314A-314B, 320A-320B, 328A-328B, 459A-459B, 552A-552B, 558A-558B, 712A-712B **Algebra 2** **SE/TE:** 74-78, 92-96, 194-198, 202-206, 209-212, 331-335, 828-831, 851-855, 861-864 **TE:** 80A-80B, 98A-98B, 201A-201B, 208A-208B, 214A-214B, 338A-338B, CB 459, 834A-834B, 858A-858B, 867A-867B

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F.IF.5 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.★	• Identify the domain of a function in context • Relate the domain of a function to its graph	**Algebra 1** **SE/TE:** 253-257, 283-286, 453-456, 474-478, 546-549, 603-606, 658-660, 698-702 **TE:** 259A-259B, 459A-459B, 552A-552B, 704A-704B **Algebra 2** **SE/TE:** 209-212, 331-335 **TE:** 214A-214B, 338A-338B
F.IF.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.★	• Calculate average rate of change (symbolically or from a table) • Interpret the rate of change in context • Estimate rate of change from a graph	**Algebra 1** **SE/TE:** 294-297, 353-356, 358-360, 412-414, 559 **TE:** 300A-300B **Algebra 2** **SE/TE:** 92-96, 194-198, 202-206, 331-335 **TE:** 98A-98B, 201A-201B, 208A-208B, CB 215, 338A-338B
F.IF.7a Graph linear and quadratic functions and show intercepts, maxima, and minima.	• Graph linear and quadratic functions expressed symbolically by hand or using technology • Show key features of the graph	**Algebra 1** **SE/TE:** 308-311, 315-318, 322-325, 353-356, 358-360, 546-549, 553-556, 567, 603-606, 608-610, 792-797 **TE:** 314A-314B, 320A-320B, 328A-328B, 552A-552B, 558A-558B **Algebra 2** **SE/TE:** 74-78, 81-86, 99-103, 107-111, 194-198, 202-206, 280-285, 288-293, 331-335, 414-418, 442-447, 515-521 **TE:** 80A-80B, 88A-88B, CB 90, 106A-106B, 113A-113B, 201A-201B, 208A-208B, 287A-287B, 295A-295B, 338A-338B, 420A-420B, 450A-450B, CB 506, 523A-523B

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F.IF.7e Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.	• Graph functions expressed symbolically by hand or using technology • Show key features of the graph Focus on but not limited exponential functions, logarithmic and trigonometric may be explores	**Algebra 1** **SE / TE:** 453-456, 474-478 **TE:** 459A-459B **Algebra 2** **SE / TE:** 434-439, 442-447, 851-855, 861-864, 868-871, 875-880, 883-887 **TE:** 441A-441B, 450A-450B, CB 477, 858A-858B, 867A-867B, 874A-874B, 882A-882B, 890A-890B
F.IF.8a Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.	• Using the processes of factoring to show zeros of a function	**Algebra 1** **SE / TE:** 553-556, 568-570, 603-606, 792-797 **TE:** 558A-558B, 572A-572B **Algebra 2** **SE / TE:** 233-237 **TE:** 239A-239B
F.IF.8b 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.	• Interpret exponential functions in terms of growth or decay and percent rate of change	**Algebra 1** **SE / TE:** 460-463, 474-478, 608-610 **TE:** 466A-466B **Algebra 2** **SE / TE:** 434-439 **TE:** 441A-441B

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F.IF.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.	• Compare properties of two functions represented in different ways	**Algebra 1** **SE/TE:** 453-456, 474-478, 553-556, 603-606 **TE:** 459A-459B, 558A-558B **Algebra 2** **SE/TE:** 81-86,202-206,339-342,451-456 **TE:** 88A-88B, 208A-208B, 345A-345B, 458A-458B
F.BF.1a Determine an explicit expression, a recursive process, or steps for calculation from a context.	• Give context, write a function using an explicit expressions, recursive process or showing steps for calculation	**Algebra 1** **SE/TE:** 274-278, 283-286, 467-470, 474-478, 480-482 **TE:** 281A-281B, 472A-472B **Algebra 2** **SE/TE:** 564-568, 572-575, 580-583 **TE:** 571A-571B, 577A-577B, CB 578, 586A-586B
F.BF.1b 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.	• Combine standard function types using arithmetic operations	**Algebra 1** **SE/TE:** 589-592 **TE:** 594A-594B **Algebra 2** **SE/TE:** 398-401,442-447,515-521, **TE:** 404A-404B,450A-450B,523A-523B

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F.BF.2 Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.★	• Model situations to write arithmetic and geometric sequences using *informal* recursive notation	**Algebra 1** **SE/TE:** 274-278, 283-286, 288-290, 467-470, 474-478, 792-797 **TE:** 281A-281B, 472A-472B **Geometry** **SE/TE:** 82, 83 **TE:** 81A **Algebra 2** **SE/TE:** 564-568,572-575,580-583 **TE:** 571A-571B,577A-577B, CB 578, 586A-586B
F.BF.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.	• Identify the effect algebraic transformations to include translations, reflections and dilations.	**Algebra 1** **SE/TE:** 307, 346-348, 353-356, 546-549, 603-606, 608-610, 720-722 **TE:** 350A-350B, 552A-552B **Geometry** **SE/TE:** 545-552, 554-560, CB 586, 587-593, 602, 604 **TE:** 552B, 560B, 593B **Algebra 2** **SE/TE:** 99-103,107-111, 194-198, 339-342,507-512 **TE:** 106A-106B, 113A-113B, 201A-201B, 345A-345B, 514A-514B
F.LE.1a Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.	• Proving when a situation can be represented using a linear or an exponential model.	**Algebra 1** **SE/TE:** 589-592, 603-606 **TE:** 594A-594B

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F.LE.1b Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.	• Recognize when a quantity changes a constant rate per unit interval relative to another	**Algebra 1** **SE/TE:** 294-297, 353-356, 792-797 **TE:** 300A-300B
F.LE.1c Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.	• Recognize when a quantity changes by a constant percent rate per unit interval relative to another	**Algebra 1** **SE/TE:** 460-463, 474-478 **TE:** 466A-466B
F.LE.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).	• Construct linear and exponential functions, including sequences, from a graph, description or two input-output pairs.	**Algebra 1** **SE/TE:** 274-278, 283-286, 288-290, 308-311, 322-325, 353-356, 358-360, 453-456, 467-470, 474-478, 589-592, 603-606 **TE:** 281A-281B, 314A-314B, 320A-320B, 328A-328B, 459A-459B, 472A-472B, 594A-594B
F.LE.3 Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	• Understanding that quantity increasing exponentially will eventually exceed all others.	**Algebra 1** **SE/TE:** 559, 589-592, 603-606 **TE:** 594A-594B **Algebra 2** **SE/TE: :** 469-473, 478-480 **TE:** 476A-476B, CB 477, 483A-483B, CB 484
F.LE.5 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.	• Understand and identify the practical and impractical domain in linear and exponential functions	**Algebra 1** **SE/TE:** 315-318, 322-325, 353-356, 460-463, 474-478 **TE:** 320A-320B, 328A-328B, 466A-466B **Algebra 2** **SE/TE:** 469-473, 478-480 **TE:** 476A-476B, CB 477, 483A-483B

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G.CO.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.	• Define angle, circle, perpendicular line, parallel line, line segment	**Geometry** **SE/TE:** 11-16, 20-23, 27-31, 44, 140-143, 649-655 **TE:** 33A-33B, 146A-146B, 657A-657B
G.GPE.4 Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point (1, $\sqrt{3}$) lies on the circle centered at the origin and containing the point (0, 2).	• Using coordinates to algebraically prove simple geometric theorems	**Geometry** **SE/TE:** 414-418 **TE:** 418A-418B
G.GPE.5 Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).	• Prove and use slope criteria for parallel and perpendicular lines	**Algebra 1** **SE/TE:** 330-333, 353-356, 358-360, 480-482, 608-610, 792-797 **TE:** 335A-335B **Geometry** **SE/TE:** 197-204, 450-458, 460-467 **TE:** 204A-204B, 458A-458B, 467A-467B
G.GPE.6 Find the point on a directed line segment between two given points that partitions the segment in a given ratio.	• Finding the midpoint	**Geometry** **SE/TE:** 20-26, 50-56, CB 57 **TE:** 26A-26B, 56A-56B

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G.GPE.7 Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.★	• Use coordinates to evaluate perimeters of areas	**Geometry** **SE/TE:** 400-405, CB 614-615, 616-622 **TE:** 405A-405B, 622A-622B
G.GMD.1 Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri's principle, and informal limit arguments.	• Use dissection arguments, Cavalieri's principle and informal limits arguments to understand formulas for circumference, area of circle and volume of cylinder, pyramid and cone	**Geometry** **SE/TE:** CB 614-615, 717-724, CB 725, 726-732 **TE:** 724A-724B, 732A-732B
G.GMD.3 Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.★	• Volume of cylinders, cones and spheres	**Geometry** **SE/TE:** 717-724, CB 725, 726-732, 733-740, 755-756 **TE:** 724A-724B, 732A-732B, 740A-740B
S.ID.1 Represent data with plots on the real number line (dot plots, histograms, and box plots).	• Represent data using dot plots, box plots and histogram	**Algebra 1** **SE/TE:** 732-735, 746-749, 786-790 **TE:** 737A-737B, 751A-751B **Algebra 2** **SE/TE:** 711-715 **TE:** 718A-718B
S.ID.2 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.	• Compare the center and spread of data of two or more data sets	**Algebra 1** **SE/TE:** 738-742, 745, 746-749, 786-790, 792-797 **TE:** 744A-744B, 751A-751B **Algebra 2** **SE/TE:** 711-715, 719-722 **TE:** 718A-718B, 724A-724B

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S.ID.3 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	• Interpret differences in shape, center and spread in the context of data	**Algebra 1** **SE/TE:** 738-742, 786-790, 792-797 **TE:** 744A-744B **Algebra 2** **SE/TE:** 711-715 **TE:** 718A-718B
S.ID.5 Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.	• Generate frequency tables • Interpret relative frequencies • Recognize associations and trends in data	**Algebra 1** **SE/TE:** 760 **Geometry** **SE/TE:** 850-855 **TE:** 855A-855B
S.ID.6a 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.	• Fit functions to a data set • Use functions to solve problems in context • Focus on linear and exponential models	**Algebra 1** **SE/TE:** 336-340, 353-356 **TE:** 343A-343B **Geometry** **SE/TE:** 856-861 **TE:** 861A-861B **Algebra 2** **SE/TE:** 92-96, 209-212, 442-447, 469-473 **TE:** 98A-98B, 214A-214B, 450A-450B, 476A-476B
S.ID.6b Informally assess the fit of a function by plotting and analyzing residuals.	• Calculate and analyze residual points	**Algebra 1** **SE/TE:** 344-345, 353-356, 595

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S.ID.6c Fit a linear function for a scatter plot that suggests a linear association.	• Use algebraic methods and technology to fit linear function to data	**Algebra 1** **SE/TE:** 336-340, 353-356, 358-360, 792-797 **TE:** 343A-343B **Algebra 2** **SE/TE:** 92-96 **TE:** 98A-98B
S.ID.7 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	• Interpret slope and intercept of a linear model in context	**Algebra 1** **SE/TE:** 336-340, 353-356 **TE:** 343A-343B **Geometry** **SE/TE:** 189-193, 195, 198-199, 200-203, 206, 279 **TE:** 129A, 196A, 191B
S.ID.8 Compute (using technology) and interpret the correlation coefficient of a linear fit.	• Compute and interpret correlation coefficient	**Algebra 1** **SE/TE:** 336-340, 353-356 **TE:** 343A-343B **Algebra 2** **SE/TE:** 92-96 **TE:** 98A-98B
S.ID.9 Distinguish between correlation and causation.	• Distinguish between correlation and causation	**Algebra 1** **SE/TE:** 336-340, 353-356 **TE:** 343A-343B