

Evidence Statement Key	Evidence Statement Text	Clarifications	MP	Calculator
N-RN.2	Rewrite expressions involving radicals and rational exponents using the properties of exponents.	None	7	Item Specific
N-CN.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.	None	7	Item Specific
N-CN.2	Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	None	6, 7	No
N-CN.7	Solve quadratic equations with real coefficients that have complex solutions.	i) Tasks are limited to equations with non-real solutions.	5	Item Specific
A-SSE.2-3	Use the structure of polynomial, rational or exponential expressions to identify ways to rewrite it. <i>For example, see <math>x^4 - y^4</math> as <math>(x^2)^2 - (y^2)^2</math>, thus recognizing it as a difference of squares that can be factored as <math>(x^2 - y^2)(x^2 + y^2)</math>.</i>	i) Additional examples: In the equation $x^2 + 2x + 1 + y^2 = 9$ , see an opportunity to rewrite the first three terms as $(x+1)^2$ , thus recognizing the equation of a circle with radius 3 and center $(-1, 0)$ . See $\frac{x^2 + 4}{x^2 + 3}$ as $\frac{(x^2 + 3) + 1}{x^2 + 3}$ , thus recognizing an opportunity to write it as $1 + \frac{1}{x^2 + 3}$ .	7	Neutral
A-SSE.3c-2	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression, where exponentials are limited to rational or real exponents.★ c) Use the properties of exponents to transform expressions for exponential functions. <i>For example the expression <math>1.15^t</math> can be rewritten as <math>\left(1.15^{\frac{1}{12}}\right)^{12t} \approx 1.012^{12t}</math> to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.</i>	i) Tasks have a context. As described in the standard, there is an interplay between the mathematical structure of the expression and the structure of the situation such that choosing and producing an equivalent form of the expression reveals something about the situation.	1, 2, 4, 7	Neutral

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<http://www.corestandards.org/Math/Content/HSM>

## Algebra 2 PBA/MYA

Evidence Statement Key	Evidence Statement Text	Clarifications	MP	Calculator
A-REI.2	Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	i) simple rational equations are limited to those whose numerators and denominators have degree at most 2.	3, 6	No
A-REI.4b-2	Solve quadratic equations in one variable. b) Recognize when the quadratic formula gives complex solutions.	i) Tasks involve recognizing an equation with complex solutions, e.g., “Which of the following equations has no real solutions?” with one of the options being a quadratic equation with non-real solutions. ii) Writing solutions in the form $a \pm bi$ is not assessed here. (N-CN.7)	7, 5	Neutral
A-REI.11-2	Find the solutions of where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect, 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, quadratic, polynomial, rational, absolute value, exponential, and/or logarithmic functions.★	i) The “explain” part of standard A-REI.11 is not assessed here. For this aspect of the standard, see Sub-claim C.	1, 5	Item Specific
A.Int.1	Solve equations that require seeing structure in expressions.	i) Tasks do not have context. ii) Equations simplify considerably after appropriate algebraic manipulations are performed. For example, if $24 + 10x - x^2 = p - (x - 5)^2$ then find the value of $p$ ; solve $(3x - 2)^2 = 6x - 4$ .	7, 1	No
HS.C.3.1	Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about numbers or number systems. Content scope: N-RN, N-CN	None	3	Yes
HS.C.3.2	Base explanations/reasoning on the properties of exponents. Content scope: N-RN.A	None	3, 8	Yes

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HS.C.4.1	Derive a formula. Content scope: A-SSE.4	None	6	Yes
HS.C.5.4	Given an equation or system of equations, reason about the number or nature of the solutions. Content scope: A-REI.2	i) See for example the illustration that begins “A student performs the following steps in solving an equation...” in <a href="#">ITN Appendix F</a> (revised), Section A. “Illustrations of innovative task characteristics,” subsection 6 “Expressing Mathematical Reasoning,” subsection “Illustrative tasks that require students to express mathematical reasoning.”	3	Yes
HS.C.5.11	Given an equation or system of equations, reason about the number or nature of the solutions. Content scope: A-REI.11, involving any of the function types measured in the standards.	i) For example, student might be asked how many positive solutions there are to the equation $e^x = x + 2$ or the equation $e^x = x + 1$ , explaining how they know. The student might use technology strategically to plot both sides of the equation without prompting.	3	Yes
HS.C.6.2	Base explanations/reasoning on the principle that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane. Content scope: A-REI.D	None	3	Yes
HS.C.6.4	Base explanations/reasoning on the principle that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane. Content scope: G-GPE.2.	None	3	Yes
HS.C.7.1	Base explanations/reasoning on the relationship between zeros and factors of polynomials. Content scope: A-APR.B	None	3	Yes
HS.C.8.2	Construct, autonomously, chains of reasoning that will justify or refute algebraic propositions or conjectures. Content scope: A-APR.4	None	3	Yes
HS.C.8.3	Construct, autonomously, chains of reasoning that will justify or refute algebraic propositions or conjectures. Content scope: A-APR	None	3	Yes

## Algebra 2 PBA/MYA

Evidence Statement Key	Evidence Statement Text	Clarifications	MP	Calculator
HS.C.9.2	Express reasoning about transformations of functions. Content scope: F-BF.3, which may involve polynomial, exponential, logarithmic or trigonometric functions. Tasks also may involve even and odd functions.	None	3	Yes
HS.C.11.1	Express reasoning about trigonometric functions and the unit circle. Content scope: F-TF.2, F-TF.8	For example, students might explain why the angles $\frac{151\pi}{3}$ and $\frac{\pi}{3}$ have the same cosine value, use the unit circle to prove that $\sin^2\left(\frac{3\pi}{4}\right) + \cos^2\left(\frac{3\pi}{4}\right) = 1$ , or compute the tangent of the angle in the first quadrant having sine equal to $\frac{1}{3}$ .	3	Yes
HS.C.12.2	Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about functions. Content scope: F-IF.8b	i) Tasks involve using algebra to prove properties of given functions. For example, prove algebraically that the function $f(n) = 3^n$ satisfies $f(n+1) = 3f(n)$ ; prove that the function defined by $f(0) = 1$ , $f(n+1) = 5f(n)$ is not linear. ii) Scaffolding is provided to ensure tasks have appropriate level of difficulty.	3	Yes
HS.C.16.3	Given an equation or system of equations, present the solution steps as a logical argument that concludes with the set of solutions (if any). Tasks are limited to simple rational or radical equations. Content scope: A-REI.1	i) Simple rational equations are limited to those whose numerators and denominators have degree at most 2.	6	Yes
HS.C.17.2	Make inferences and justify conclusions from data. Content scope: S-IC.Int.	None	2, 4	Yes
HS.C.17.3	Make inferences and justify conclusions from data. Content scope: S-IC.3	None	2, 5	Yes
HS.C.17.4	Make inferences and justify conclusions from data. Content scope: S-IC.5	None	2, 6	Yes

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Evidence Statement Key	Evidence Statement Text	Clarifications	MP	Calculator
HS.C.17.5	Make inferences and justify conclusions from data. Content scope: S-IC.6	i) The primary content for this Evidence Statement is S-IC	2, 7	Yes
HS.C.18.4	Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about polynomials, rational expressions, or rational exponents. Content scope: N-RN.3, A-APR.(2, 3, 4, 6).		3, 6	Yes
HS.D.2-3	Solve multi-step contextual problems with degree of difficulty appropriate to the course that require solving a system of three linear equations in three unknowns.	None	-	Yes
HS.D.2-4	Solve multi-step contextual problems with degree of difficulty appropriate to the course that require writing an expression for an inverse function.	i) Refer to F-BF.4a for some of the content knowledge relevant to these tasks.	-	Yes
HS.D.2-7	Solve multi-step contextual word problems with degree of difficulty appropriate to the course, requiring application of course-level knowledge and skills articulated in A-CED, N-Q.2, A-REI.6, A-SSE.3, A-REI.7, A-REI.12, A-REI.11-2	i) A-CED is the primary content; other listed content elements may be involved in tasks as well.	4, 2	Yes
HS.D.2-10	Solve multi-step contextual word problems with degree of difficulty appropriate to the course, requiring application of course-level knowledge and skills articulated in F-BF.A, F-BF.3, F-IF.3, A-CED.1, A-SSE.3, F-IF.B, F-IF.7	i) F-BF.A is the primary content; other listed content elements may be involved in tasks as well.	4, 2	Yes
HS.D.2-12	Solve multi-step contextual word problems with degree of difficulty appropriate to the course, requiring application of course-level knowledge and skills articulated in S-ID, S-IC, and S-CP.	i) Longer tasks may require some or all of the steps of the modeling cycle (CCSS, pp.72, 73); for example, see <a href="#">ITN Appendix F</a> , “Karnataka” task (Section A “Illustrations of innovative task characteristics,” subsection 7 “Modeling/Application,” subsection f “Full Models”). As in the Karnataka example, algebra and function skills may be used.	1, 2, 4, 5, 6	Yes

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HS.D.2-13	Solve multi-step contextual word problems with degree of difficulty appropriate to the course, requiring application of course-level knowledge and skills articulated in S-ID, S-IC, including normal distributions.	i) Longer tasks may require some or all of the steps of the modeling cycle (CCSS, pp.72, 73); for example, see <a href="#">ITN Appendix F</a> , “Karnataka” task (Section A “Illustrations of innovative task characteristics,” subsection 7 “Modeling/Application,” subsection f “Full Models”). As in the Karnataka example, algebra and function skills may be used.	1, 2, 4, 5, 6	Yes
HS.D.3-5	<p>Decisions from data: Identify relevant data in a data source, analyze it, and draw reasonable conclusions from it.</p> <p>Content scope: Knowledge and skills articulated in course level appropriate standards within N-RN, N-CN, A-SSE, A-REI, A-CED, A-APR, S-IC, G-GPE, F-BF, F-TF and F-IF (see the Model Content Framework for specific content standards).</p>	<p>i) Tasks may result in an evaluation or recommendation.</p> <p>ii) The purpose of tasks is not to provide a setting for the student to demonstrate breadth in data analysis skills (such as box-and-whisker plots and the like). Rather, the purpose is for the student to draw conclusions in a realistic setting using elementary techniques.</p>	4, may involve 1, 2, 5, 7	Yes

## Algebra 2 PBA/MYA

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HS.D.3-6	<p>Full models: Identify variables in a situation, select those that represent essential features, formulate a mathematical representation of the situation using those variables, analyze the representation and perform operations to obtain a result, interpret the result in terms of the original situation, validate the result by comparing it to the situation, and either improve the model or briefly report the conclusions.</p> <p>Content scope: Knowledge and skills articulated in the Standards in grades 6 through 8 (excluding statistics).</p>	<p>i) See CCSS, pp. 72, 73 for more information.</p> <p>ii) Task prompts describe a scenario using everyday language. Mathematical language such as “function,” “equation,” etc. is not used.</p> <p>iii) Tasks require the student to make simplifying assumptions autonomously in order to formulate a mathematical model. For example, the student might autonomously make a simplifying assumption that every tree in a forest has the same trunk diameter, or that water temperature is a linear function of ocean depth.</p> <p>iv) Tasks may require the student to create a quantity of interest in the situation being described. (Cf. (N-Q.2).) For example, in a situation involving population and land area, the student might autonomously decide that population density is a key variable, and then choose to work with persons per square mile. In a situation involving data, the student might autonomously decide that a measure of center is a key variable in a situation, and then choose to work with the mean.</p> <p>v) Tasks may involve choosing a level of accuracy appropriate to limitations of measurement or limitations of data when reporting quantities. (N-Q.3, first introduced in A1/MI).</p>	4, may involve 1, 2, 5, 7	Yes
HS.C.CCR	<p>Solve multi-step mathematical problems requiring extended chains of reasoning and drawing on a synthesis of the knowledge and skills articulated across: 7-RP.A.3, 7-NS.A.3, 7-EE.B.3, 8-EE.C.7B, 8-EE.C.8c, N-RN.A.2, A-SSE.A.1b, A-REI.A.1, A-REI.B.3, A-REI.B.4b, F-IF.A.2, F-IF.C.7a, F-IF.C.7e, G-SRT.B.5 and G-SRT.C.7.</p>	<p>i) Tasks will draw on securely held content from previous grades and courses, including down to Grade 7, but that are at the Algebra II/Mathematics III level of rigor.</p> <p>ii) They will synthesize multiple aspects of the content listed in the evidence statement text, but need not be comprehensive.</p> <p>Tasks should address at least A-SSE.A.1b, A-REI.A.1, and F-IF.A.2 and either F-IF.C.7a or F-IF.C.7e (excluding trigonometric and logarithmic functions). Tasks should also draw upon additional content listed for grades 7 and 8 and from the remaining standards, as appropriate.</p>		