Evidence Statement Tables

Mathematics II

Evidence Statement Keys

Evidence statements describe the knowledge and skills that an assessment item/task elicits from students. These are derived directly from the Common Core State Standards for Mathematics (the standards), and they highlight the advances of the standards, especially around their focused coherent nature. The evidence statement keys for grades 3 through 8 will begin with the grade number. High school evidence statement keys will begin with "HS" or with the label for a conceptual category. Together, the five different types of evidence statements described below provide the foundation for ensuring that the assessment of full range and depth of the standards can be downloaded from http://www.corestandards.org/Math/.

An Evidence Statement might:

1. **Use exact standard language** – For example:

- 8.EE.1 - Know and apply the properties of integer exponents to generate equivalent numerical expressions*. For example,* $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$. This example uses the exact language as standard 8.EE.1

2. **Be derived by focusing on specific parts of a standard** – For example: 8.F.5-1 and 8.F.5-2 were derived from splitting standard 8.F.5:

- 8.F.5-1 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear).
- 8.F.5-2 Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

Together these two evidence statements are standard 8.F.5:

Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or 2 decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

3. **Be integrative (Int) –** Integrative evidence statements allow for the testing of more than one of the standards on a single item/task without going beyond the standards to create new requirements. An integrative evidence statement might be integrated across all content within a grade/course, all standards in a high school conceptual category, all standards in a domain, or all standards in a cluster. For example:

- **Grade/Course – 4.Int.2[§]** (Integrated across Grade 4)
- **Conceptual Category – F.Int.1[§]** (Integrated across the Functions Conceptual Category)
- **Domain – 4.NBT.Int.1[§]** (Integrated across the Number and Operations in Base Ten Domain)
- **Cluster** – **3.NF.A.Int.1[§]** (Integrated across the Number and Operations – Fractions Domain, Cluster A)

4. **Focus on mathematical reasoning–** A reasoning evidence statement (keyed with C) will state the type of reasoning that an item/task will require and the content scope from the standard that the item/task will require the student to reason about. For example:

- 3.C.2§ -- Base explanations/reasoning on the relationship between addition and subtraction or the relationship between multiplication and division.
    - Content Scope: Knowledge and skills are articulated in 3.OA.6
- 7.C.6.1§ – Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures.
    - Content Scope: Knowledge and skills are articulated in 7.RP.2

Note: When the focus of the evidence statement is on reasoning, the evidence statement may also require the student to reason about securely held knowledge from a previous grade.

5. **Focus on mathematical modeling –** A modeling evidence statement (keyed with D) will state the type of modeling that an item/task will require and the content scope from the standard that the item/task will require the student to model about. For example:

- 4.D.2§ – Solve multi-step contextual problems with degree of difficulty appropriate to Grade 4 requiring application of knowledge and skills articulated in 3.OA.A, 3.OA.8,3.NBT, and/or 3.MD.

Note: The example 4.D.2 is of an evidence statement in which an item/task aligned to the evidence statement will require the student to model on grade level, using securely held knowledge from a previous grade.

- HS.D.5§ - 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.

§ The numbers at the end of the integrated, modeling and reasoning Evidence Statement keys are added for assessment clarification and tracking purposes. For example, 4.Int.2 is the second integrated Evidence Statement in Grade 4.

Mathematics II Evidence Statements Listing by Type I, Type II, and Type III

The Evidence Statements for Mathematics II are provided starting on the next page. The list has been organized to indicate whether items designed are aligned to an Evidence Statement used for Type I items, Type II items (reasoning), or Type III items (modeling).

Evidence Statements are presented in the order shown below and are color coded:

Peach – Evidence Statement is applicable to Type I items.

Lavender – Evidence Statement is applicable to Type II items.

Aqua – Evidence Statement is applicable to the Type III items.

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator*
A	A-APR.1-1	Add, subtract, and multiply polynomials.	i) The "understand" part of the standard is not assessed here; it is assessed under Sub-Claim C.	-	Z
A	A-CED.4-2	Rearrange formulas that are quadratic in the quantity of interest to highlight the quantity of interest, using the same **reasoning** as in solving equations.	i) Tasks have a real-world context.	MP.2 MP.6 MP.7	Z
A	A-REI.4a-1	Solve quadratic equations in one variable. a) Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x – p)^2 = q$ that has the same solutions.	i) The derivation part of the standard is not assessed here; it is assessed under Sub-Claim C.	MP.1 MP.7	X
A	A-REI.4b-1	Solve quadratic equations in one variable. b) Solve quadratic equations with rational number coefficients 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.	i) Tasks should exhibit variety in initial forms. Examples of quadratic equations with real solutions: $t^2 = 49$, $3a^2 = 4$, $7 = x^2$, $r^2 = 0$, $(1/2)\ y^2 = 1/5$, $y^2 - 8y + 15 = 0$, $2x^2 - 16x + 30 = 0$, $2p = p^2 + 1$, $t^2 = 4t$, $7x^2 + 5x - 3 = 0$, $(3/4)c(c - 1) = c$, $(3x - 2)^2 = 6x – 4$ ii) Methods are not explicitly assessed; strategy is assessed indirectly by presenting students with a variety of initial forms. iii) For rational solutions, exact values are required. For irrational solutions, exact or decimal approximations may be required. Simplifying or rewriting radicals is not required; however, students will not be penalized if they simplify the radicals correctly. iv) Prompts integrate mathematical practices by not indicating that the equation is quadratic. (e.g., "Find all real solutions of the equation $t^2 = 4t$" ... not, "Solve the quadratic equation $t^2 = 4t$.")	MP.5 MP.7	X
A	A-REI.4b-2	Solve quadratic equations in one variable. b) Recognize when the quadratic formula gives complex solutions.	i) Writing solutions in the form a ± bi is not assessed here (assessed under N-CN.7).	MP.5 MP.7	X
B	A-REI.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 $x^2 + y^2 = 3$.	i) Tasks have thin context or no context.	MP.1	X

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator*
A	A-SSE.1-2	Interpret quadratic expressions that represent a quantity in terms of its context.★ a) Interpret parts of an expression, such as terms, factors, and coefficients. b) Interpret complicated expressions by viewing one or more of their parts as a single entity.	i) See illustrations for A-SSE.1 at http://illustrativemathematics.org, e.g. http://illustrativemathematics.org/illustrations/90	MP.7	Z
A	A-SSE.2-2	Use the structure of quadratic or exponential expressions, including related numerical expressions 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* $(x^2 - y^2)(x^2 + y^2)$.	i) Examples: Recognize $53^2 - 47^2$ as a difference of squares and see an opportunity to rewrite it in the easier-to-evaluate form (53 + 47)(53 - 47).	MP.7	X
A	A-SSE.2-5	Use the structure of a quadratic or exponential expression to rewrite it, in a case where two or more rewriting steps are required.	i) Example: Factorize completely: $x^2 - 1 + (x-1)^2$. (A first iteration might give $(x+1)(x-1) + (x-1)^2$, which could be rewritten as $(x-1)(x+1+x-1)$ on the way to factorizing completely as $2x(x-1)$. Or the student might first expand, as $x^2 - 1 + x^2 - 2x + 1$, rewriting as $2x^2 - 2x$, then factorizing as $2x(x-1)$. ii) Tasks do not have a real-world context.	MP.1 MP.7	Z
A	A-SSE.3a	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.★ a. Factor a quadratic expression to reveal the zeros of the function it defines.	i) The equivalent form must reveal the zeros of the function. ii) Tasks require students to make the connection between the equivalent forms of the expression.	MP.7	Z
A	A-SSE.3b	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.★ b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.	i) The equivalent form must reveal zeroes of the function. ii) Tasks require students to make the connection between the equivalent forms of the expression.	MP.7	Z
B	F-BF.1b-1	Represent arithmetic combinations of standard function types algebraically.	i) Tasks may or may not have a real-world context. For example, given $f(x) = e^x$ and $g(x) = 5$, write an expression for $h(x) = 2f(-3x) + g(x)$. ii) More substantial work along these lines occurs in Sub-Claim D.	MP.7	Z

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator*
B	F-BF.3-1	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 limiting the function types to linear and quadratic functions.	i) Tasks do not involve recognizing even and odd functions. ii) Experimenting with cases and illustrating an explanation are not assessed here. They are assessed under sub-claim C. iii) Tasks may involve more than one transformation.	MP.3 MP.5 MP.7	X
B	F-BF.3-4	Identify the effect on the graph of a quadratic function of replacing *f*(*x*) by *f*(*x*) + *k*, *kf*(*x*), *f*(*k*x), and *f*(*x* + *k*) for specific values of *k* (both positive and negative); find the value of *k* given the graphs. Experiment with cases using technology.	i) Illustrating an explanation is not assessed here. Explanations are assessed under Sub-Claim C.	MP.3 MP.5 MP.8	X
A	F-IF.4-4	For a quadratic or exponential 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 end behavior; and symmetries.*★	i) See illustrations for F-IF.4 at http://illustrativemathematics.org, e.g., http://illustrativemathematics.org/illustrations/649, http://illustrativemathematics.org/illustrations/637, http://illustrativemathematics.org/illustrations/639	MP.4 MP.6	X
A	F-IF.5-2	Relate the domain of a function to a graph and, where applicable, to the quantitative relationship it describes, limiting to quadratic functions. *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 this function.*★	i) Tasks have a real-world context.	MP.2	Z
A	F-IF.6-4	Calculate and interpret the average rate of change of a quadratic or exponential function (presented symbolically or as a table) over a specified interval. ★	i) Tasks have a real-world context. ii) Tasks must include the interpret part of the evidence statement. iii) The rate of change should be limited to intervals of the function that are linear or near linear.	MP.1 MP.4 MP.5 MP.7	X
A	F-IF.6-9	Estimate the rate of change from a graph of quadratic and/or exponential functions.★	i) Tasks have a real-world context. ii) The rate of change should be limited to intervals of the function that are linear or near linear.	MP.1 MP.4 MP.5 MP.7	X
B	F-IF.7a-2	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. a) Graph quadratic functions and show intercepts, maxima, and minima.	-	MP.1 MP.5 MP.6	X

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator*
B	F-IF.7b	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.★ b) Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	i) Discontinuities are allowed as key features of the graph.	MP.1 MP.5 MP.6	X
B	F-IF.7e-1	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.★ e) Graph exponential functions, showing intercepts and end behavior.	-	MP.1 MP.5 MP.6	X
B	F-IF.8a	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. a) 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.	i) Tasks have a real-world context.	MP.2	Y
B	F-IF.8b	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. 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.*	-	MP.7	X
B	F-IF.9-4	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.* Function types are limited to quadratic and exponential functions.	i) Tasks may or may not have a real-world context.	MP.1 MP.3 MP.5 MP.6 MP.8	X

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator*
Ψ	F-Int.1-4	Given a verbal description of a quadratic or exponential functional dependence, write an expression for the function and demonstrate various knowledge and skills articulated in the Functions category in relation to this function.	i) Given a verbal description of a functional dependence, the student would be required to write an expression for the function and then, e.g., identify a natural domain for the function given the situation; use a graphing tool to graph several input-output pairs; select applicable features of the function, such as linear, increasing, decreasing, quadratic, nonlinear; and find an input value leading to a given output value. *- e.g., a functional dependence might be described as follows: "The area of a square is a function of the length of its diagonal." The student would be asked to create an expression such as f(x) = (1/2) x^2 for this function. The natural domain for the function would be the positive real numbers. The function is increasing and nonlinear. And so on.*	MP.1 MP.2 MP.8	X
B	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.*	-	MP.3 MP.6 MP.7	Z
B	G-GMD.3	Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems. ★	-	MP. 4	X
A	G-SRT.1a	Verify experimentally the properties of dilations given by a center and a scale factor: a) A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.	-	MP.1 MP.3 MP.5 MP.8	Z
A	G-SRT.1b	Verify experimentally the properties of dilations given by a center and a scale factor: b) The dilation of a line segment is longer or shorter in the ratio given by the scale factor.	-	MP.1 MP.3 MP.5 MP.8	Z
A	G-SRT.2	Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar.	i) The "explain" part of standard G-SRT.2 is not assessed here. See Sub-Claim C for this aspect of the standard.	MP. 7	Z
A	G-SRT.5	Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.	i) For example, find a missing angle or side in a triangle.	MP. 7	Z

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator*
A	G-SRT.6	Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.	i) Trigonometric ratios include sine, cosine, and tangent only	MP. 7	Z
A	G-SRT.7-2	Use the relationship between the sine and cosine of complementary angles.	i) The "explain" part of standard G-SRT.7 is not assessed here; See Sub-Claim C for this aspect of the standard.	MP. 7	Z
A	G-SRT.8	Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.	i) The task may have a real world or mathematical context. ii) For rational solutions, exact values are required. For irrational solutions, exact or decimal approximations may be required. Simplifying or rewriting radicals is not required; however, students will not be penalized if they simplify the radicals correctly.	MP.1 MP.2 MP.5 MP.6	X
B	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.	-	MP.7	X
B	N-CN.2	Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	-	MP.6 MP.7	N
B	N-CN.7	Solve quadratic equations with real coefficients that have complex solutions.	i) Tasks are limited to equations with non-real solutions.	MP.5	X
A	N-RN.2	Rewrite expressions involving radicals and rational exponents using the properties of exponents.	-	MP.7	X
B	N-RN.B-1	Apply properties of rational and irrational numbers to identify rational and irrational numbers.	i) Tasks should go beyond asking students to only identify rational and irrational numbers. ii) This evidence statement is aligned to the cluster heading. This allows other cases besides the three cases listed in N-RN.3 to be assessed.	MP.6	N

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator*
Ψ	S-CP.Int.1	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-CP.	i) Calculating expected values of a random variable is a plus standard and not assessed; however, the word "expected" may be used informally (e.g., if you tossed a fair coin 20 times, how many heads would you expect?).	MP.1 MP.2 MP.4 MP.5 MP.6	Y
B	S-ID.6a-1	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.6a, excluding normal distributions and limiting function fitting to exponential functions.	-	MP.1 MP.2 MP.4 MP.5 MP.6	Y
B	S-ID.Int.2	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, excluding normal distributions and limiting function fitting to quadratic, linear and exponential (with domains in the integers) functions with an emphasis on quadratic functions.	i) Tasks should go beyond 6.SP.4 ii) For tasks that use bivariate data, limit the use of time series. Instead use data that may have variation in the y-values for given x-values, such as pre and post test scores, height and weight, etc. iii) Predictions should not extrapolate far beyond the set of data provided. iv) To investigate associations, students may be asked to evaluate scatterplots that may be provided or created using technology. Evaluation includes shape, direction, strength, presence of outliers, and gaps. v) Analysis of residuals may include the identification of a pattern in a residual plot as an indication of a poor fit. vi) Quadratic models may assess minimums/maximums, intercepts, etc.	MP.1 MP.2 MP.4 MP.5 MP.6	Y

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator*
Ψ	HS-Int.1	Solve multi-step contextual problems with degree of difficulty appropriate to the course by constructing quadratic function models and/or writing and solving quadratic equations.	i) A scenario might be described and illustrated with graphics (or even with animations in some cases) ii) Solutions may be given in the form of decimal approximations. For rational solutions, exact values are required. For irrational solutions, exact or decimal approximations may be required. Simplifying or rewriting radicals is not required; however, students will not be penalized if they simplify the radicals correctly. Some examples: *- A company sells steel rods that are painted gold. The steel rods are cylindrical in shape and 6 cm long. Gold paint costs $0.15 per square inch. Find the maximum diameter of a steel rod if the cost of painting a single steel rod must be $0.20 or less. You may answer in units of centimeters or inches. Give an answer accurate to the nearest hundredth of a unit.* *- As an employee at the Gizmo Company, you must decide how much to charge for a gizmo. Assume that if the price of a single gizmo is set at P dollars, then the company will sell 1000 - 0.2P gizmos per year. Write an expression for the amount of money the company will take in each year if the price of a single gizmo is set at P dollars. What price should the company set in order to take in as much money as possible each year? How much money will the company make per year in this case? How many gizmos will the company sell per year? (Students might use graphical and/or algebraic methods to solve the problem.)* *- At t=0, a car driving on a straight road at a constant speed passes a telephone pole. From then on, the car's distance from the telephone pole is given by C(t) = 30t, where t is in seconds and C is in meters. Also at t=0, a motorcycle pulls out onto the road, driving in the same direction, initially 90 m ahead of the car. From then on, the motorcycle's distance from the telephone pole is given by M(t) = 90 + 2.5 t^2, where t is in seconds and M is in meters. At what time t does the car catch up to the motorcycle? Find the answer by setting C and M equal. How far are the car and the motorcycle from the telephone pole when this happens? (Students might use graphical and/or algebraic methods to solve the problem.)*	MP.1 MP.2 MP.4 MP.5 MP.6	Y

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator*
Ψ	HS-Int.2	Solve multi-step mathematical problems with degree of difficulty appropriate to the course that require analyzing quadratic functions and/or writing and solving quadratic equations.	i) Tasks do not have a real-world context. ii) Exact answers may be required or decimal approximations may be given. Students might choose to take advantage of the graphing utility to find approximate answers or clarify the situation at hand. For rational solutions, exact values are required. For irrational solutions, exact or decimal approximations may be required. Simplifying or rewriting radicals is not required. Some examples: - Given the function $f(x) = x2 + x$, find all values of k such that $f(3 - k) = f(3)$. (Exact answers are required.) - Find a value of c so that the equation $2x2 - cx + 1 = 0$ has a double root. Give an answer accurate to the tenths place.	MP.1 MP.2 MP.5 MP.6	Y

★Modeling standards appear throughout the CCSSM. Evidence statements addressing these modeling standards are indicated by a star symbol (★).

Ψ - This integrated evidence statements will be reported in the Master Claim which is used to determine if a student is college or career ready.

*Calculator Key:
Y – Yes; Assessed on Calculator Sections
N – No; Assessed on Non-Calculator Sections
X – Calculator is Specific to Item
Z – Calculator Neutral (Could Be on Calculator or Non-Calculator Sections)

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator*
C	HS.C.2.1	Base explanations/reasoning on the properties of rational and irrational numbers. Content Scope: N-RN.3	i) For rational solutions, exact values are required. For irrational solutions, exact or decimal approximations may be required. Simplifying or rewriting radicals is not required; however, students will not be penalized if they simplify the radicals correctly.	MP.3	Y
C	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	-	MP.3	Y
C	HS.C.3.2	Base explanations/reasoning on the properties of exponents. Content Scope: N-RN.A	-	MP.3 MP.8	Y
C	HS.C.5.5	Given an equation or system of equations, reason about the number or nature of the solutions. Content Scope: A-REI.4a, A-REI.4b, limited to real solutions only.	-	MP.3	Y
C	HS.C.8.1	Construct, autonomously, chains of reasoning that will justify or refute algebraic propositions or conjectures. Content Scope: A-APR.1	-	MP.3	Y
C	HS.C.9.1	Express reasoning about transformations of functions. Content Scope: F-BF.3, limited to linear and quadratic functions. Tasks will not involve ideas of even or odd functions	-	MP.3	Y
C	HS.C.12.1	Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about functions. Content Scope: F-IF.8a.	i) Tasks involve using algebra to prove properties of given functions. For example, prove algebraically that the function $h(t) = t(t\text{-}1)$ has minimum value 1/4; prove algebraically that the graph of $g(x) =(x^2) - x + 1/4$ is symmetric about the line $x = 1/2$; prove that $(x^2) + 1$ is never less than $-2x$. ii) Scaffolding is provided to ensure tasks have appropriate level of difficulty. (For example, the prompt could show the graphs of $(x^2) + 1$ and $-2x$ on the same set of axes, and say, "From the graph, it looks as if $(x^2) + 1$ is never less than $-2x$. In this task, you will use algebra to prove it." And so on, perhaps with additional hints or scaffolding.) iii) Tasks may have a mathematical or real-world context.	MP.3	Y
C	HS.C.12.2	Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about functions. Content Scope: F-IF.8b.	-	MP.3	Y

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator*
C	HS.C.14.5	Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content Scope: G-SRT.A	-	MP.3	Y
C	HS.C.14.6	Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content Scope: G-SRT.B	-	MP.3	Y
C	HS.C.15.14	Present solutions to multi-step problems in the form of valid chains of reasoning, using symbols such as equals signs appropriately (for example, rubrics award less than full credit for the presence of nonsense statements such as 1 + 4 = 5 + 7 = 12, even if the final answer is correct), or identify or describe errors in solutions to multi-step problems and present corrected solutions. Content Scope: G-SRT.C	-	MP.3 MP.6	Y
C	HS.C.16.2	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 quadratic equations. Content Scope: A-REI.1, A-REI.4a, A-REI.4b, limited to real solutions only.	-	MP.6	Y
C	HS.C.18.3	Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures Content Scope: Algebra content from the Mathematics II course; geometry content from the Mathematics I or Mathematics II course.	-	MP.3 MP.6	Y

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Y – Yes; Assessed on Calculator Sections
N – No; Assessed on Non-Calculator Sections
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Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator*
D	HS.D.1-2	Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 6.G, 7.G, and/or 8.G.	-	MP 4, may involve MP.1, MP.2 MP.5 MP.7	Y
D	HS.D.2-1	Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require solving a quadratic equation.	i) Tasks do not cue students to the type of equation or specific solution method involved in the task. For example: *- An artist wants to build a right-triangular frame in which one of the legs exceeds the other in length by 1 unit, and in which the hypotenuse exceeds the longer leg in length by 1 unit. Use algebra to show that there is one and only one such right triangle, and determine its side lengths.*	MP.1 MP.4 MP.5	Y
D	HS.D.2-2	Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require finding an approximate solution to a polynomial equation using numerical/graphical means.	i) Tasks may have a real world or mathematical context ii) Tasks may involve coordinates (G-GPE.7) iii) Refer to A-REI.11 for some of the content knowledge from the previous course relevant to these tasks. iv) Cubic polynomials are limited to ones in which linear and quadratic factors are available v) To make the tasks involve strategic use of tools (MP.5), calculation and graphing aids are available but tasks do not prompt the student to use them	MP.1 MP.4 MP.5	Y
D	HS.D.2-6	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-SSE.3, A-REI.6, A-REI.12, A-REI.11-1, limited to linear and quadratic equations	i) A-CED is the primary content; other listed content elements may be involved in tasks as well.	MP.2 MP.4	Y

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator*
D	HS.D.2-9	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.1a, F-BF.3, A-CED.1, A-SSE.3, F-IF.B, F-IF.7, limited to linear and quadratic functions.	i) F-BF.1a is the primary content; other listed content elements may be involved in tasks as well.	MP.2 MP.4	Y
D	HS.D.2-11	Solve multi-step contextual word problems with degree of difficulty appropriate to the course, requiring application of course-level knowledge and skills articulated in G-SRT.8, involving right triangles in an applied setting.	i) Tasks may or may not require the student to autonomously make an assumption or simplification in order to apply techniques of right triangles. For example, a configuration of three buildings might form a triangle that is nearly but not quite a right triangle, so that a good approximate result can be obtained if the student autonomously approximates the triangle as a right triangle.	MP.2 MP.4	Y
D	HS.D.3-2b	Micro-models: Autonomously apply a technique from pure mathematics to a real-world situation in which the technique yields valuable results even though it is obviously not applicable in a strict mathematical sense (e.g., profitably applying proportional relationships to a phenomenon that is obviously nonlinear or statistical in nature). Content Scope: Knowledge and skills articulated in Mathematics II Type I, Sub-Claim A Evidence Statements.	i) Tasks include a geometric aspect. ii) Tasks may also include other content dimensions (e.g., algebraic, numerical).	MP 4, may involve MP.1, MP.2 MP.5 MP.7	Y
D	HS.D.3-4b	Reasoned estimates: Use reasonable estimates of known quantities in a chain of reasoning that yields an estimate of an unknown quantity. Content Scope: Knowledge and skills articulated in Mathematics II Type I, Sub-Claim A Evidence Statements.	i) Tasks include a geometric aspect. ii) Tasks may also include other content dimensions (e.g., algebraic, numerical).-	MP 4, may involve MP.1, MP.2 MP.5 MP.7	Y

*Calculator Key:
Y – Yes; Assessed on Calculator Sections
N – No; Assessed on Non-Calculator Sections
X – Calculator is Specific to Item
Z – Calculator Neutral (Could Be on Calculator or Non-Calculator Sections)