**“Legacy” Competency Portfolio Requirements**

These requirements may be used only for competency portfolios submitted prior to the 2018–2019 school year and **resubmitted in spring 2023**.

**MATHEMATICS** high school competency portfolios must include the following, at minimum, to be considered for the Competency Determination.

* + at least four examples or problems solved correctly by the student that demonstrate each aspect of all required learning standards. Additional work samples in each standard are encouraged.
	+ a completed **“Legacy”** **High School Mathematics Competency Portfolio Work Description** attached to each work sample (Use the “Legacy” Work Description for samples completed during and beyond the 2018-2019 school year.)
	+ a **score** (percent accurate) given by the teacher for each work sample, with incorrect answers clearly marked
	+ written evidence of the student’s thinking and problem-solving, indicating the process and steps used to solve each problem
	+ work samples produced as independently as possible by the student;corrections made by the teacher may not be submitted as the student's own work
	+ a clear indication of the type(s) and frequency of assistance provided to the student by the teacher (i.e., percent independence and any accommodations used by the student), provided on the Mathematics High School Competency Portfolio Work Description
	+ original student work, not photocopies
	+ submission of multiple-choice, matching, and fill-in-the-blank worksheets is discouraged

*Mathematics portfolios may include evidence produced over a period of* ***more than one school year****, beginning as early as grade 9. Evidence may be added to an existing portfolio and resubmitted annually beyond grade 10.*

In the tables below, the content requirements from the 2000 frameworks are cross-referenced with the 2011 mathematics standards.

**Number Sense and Operations (2011 Conceptual Category: Number and Quantity)**
At least four examples solved correctly by the student must be submitted that show *each aspect* of the 2000 standards identified below.

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| **2011 Standards** | **2000 Standards** | **Competency Portfolio Requirements** (from the 2000 Curriculum Frameworks) |
| **7.NS.A.3****7.EE.B.3****8.EE.A.2****HSN-RN.A.2** | **10.N.1** | Identify and use:* the properties of operations on real numbers, including the **associative**, **commutative**, and **distributive** properties [Note: Do not simply define these properties; show how they are applied and demonstrate that students can identify each property; e.g., use the distributive property to multiply 7(23)=7(20+3)=7(20)+7(3)=140+21=161];
* the existence of the identity and inverse elements for addition and multiplication;
* the existence of **nth roots** of positive real numbers for any positive integer n; and
* the inverse relationship between taking the nth root of and the **nth power** of a positive real number.
 |
| **6.EE.A.2****7.NS.A.3****8.EE.A.1** | **10.N.2** | Simplify numerical expressions, including those involving:* positive integer exponents [e.g., 3(24 - 1) = 45], and
* the absolute value [e.g., 4|3 - 5| + 6 = 14], and
* apply such simplifications in the solution of problems.
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**Patterns, Relations, and Algebra (2011 Conceptual Categories: Algebra and Functions)**
At least four examples solved correctly by the student must be submitted that show *each aspect* of the 2000 standards identified below.

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| **2011 Standards** | **2000 Standards** | **Competency Portfolio Requirements** (from the 2000 Curriculum Frameworks) |
| **8.F.B.4****HSA-CED.A.2****HSF-IF.B.4****HSF-IF.C.8** | **10.P.2** | * Demonstrate an understanding of the relationship between various representations of a line.
* Determine a line’s slope and x- and y-intercepts from its graph or from a linear equation that represents the line.
* Find a linear equation describing a line from a graph or a geometric description of the line (e.g., by using the “point-slope” or “slope y-intercept” formulas).
* Explain the significance of a positive, negative, zero, or undefined slope.
 |
| **8.EE.A.1****HSA-APR.A.1****HSA-SSE.A.2** | **10.P.4** | Demonstrate facility in symbolic **manipulation** of polynomial and rational expressions by * **rearranging** and **collecting terms**;
* **factoring** [e.g., a2 - b2 = (a + b)(a - b); x2 + 10x + 21 = (x + 3)(x + 7); 5x4 + 10x3 - 5x2 = 5x2 (x2 + 2x - 1)];
* **identifying and canceling common factors** in rational expressions; and
* applying the properties of positive integer exponents.

[This standard does **not** include simple addition, subtraction, and multiplication of polynomials, as covered in 10.P.3.] |
| **HSA-REI.B.4** | **10.P.5** | Find solutions to quadratic equations (with real roots) by: * factoring,
* completing the square, or
* using the quadratic formula.
* Demonstrate an understanding of the equivalence of the methods. [Note: In order to demonstrate an understanding of equivalence of the methods, at least two methods must be shown for the same equation.]
 |
| **HSA-CED.A.1****HSA-CED.A.2****HSF-LE.A.1****HSF-LE.A.2****HSF-IF.B.4** | **10.P.7** | Solve everyday problems that can be modeled using * linear,
* reciprocal,
* quadratic, or exponential functions.
* Apply appropriate tabular, graphical, or symbolic methods to the solution.
* Include compound interest [i.e., exponential], and
* direct [i.e., linear] and
* inverse [i.e., reciprocal] variation problems. Use technology when appropriate.
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**Geometry (2011 Conceptual Category: Geometry)**
At least four examples solved correctly by the student must be submitted that show *each aspect* of **any three** 2000 **standards** identified below.

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| **2011 Standards** | **2000 Standards** | **Competency Portfolio Requirements** (from the 2000 Curriculum Frameworks) |
| **5.G.B.4****8.G.A.2** | **10.G.1** | * Identify figures using properties of sides,
* angles, and
* diagonals
* Identify the figures’ type(s) of symmetry.
 |
| **HSG-CO.D.12** | **10.G.2** | * Draw congruent and similar figures using a compass, straightedge, protractor, and other tools such as computer software.
* Make conjectures about methods of construction.
* Justify the conjectures by logical arguments.
 |
| **8.G.A.5****HSG-C.A.2** | **10.G.3** | * Recognize and solve problems involving angles formed by transversals of coplanar lines.
* Identify and determine the measure of central and inscribed angles, and
* their associated minor and major arcs.
* Recognize and solve problems associated with radii,
* chords, and
* arcs within or on the same circle.
 |
| **HSG-SRT.A.2****HSG-SRT.B.5** | **10.G.4** | * Apply congruence and similarity correspondences (e.g., ΔABC ≅ ΔXYZ) and
* properties of the figures to find missing parts of geometric figures, and
* provide logical justification.
 |
| **8.G.A.5****HSG-SRT.C.8** | **10.G.5** | * Solve simple triangle problems using the triangle angle sum property and
* the Pythagorean theorem. [Note: Both must be shown.]
 |
| **HSG-SRT.B.5****HSG-SRT.C.6** | **10.G.6** | * Use the properties of special triangles to solve problems; for example:
* isosceles,
* equilateral,
* 30º-60º-90º
* 45º-45º-90º
 |
| **8.F.B.4****8.G.B.8****HSG-GPE.B.4****HSG-GPE.B.6** | **10.G.7** | Using rectangular coordinates, * calculate midpoints of segments,
* slopes of lines and segments, and
* distances between two points, and
* apply the results to the solutions of problems.
 |
| **HSG-GPE.5** | **10.G.8** | Find linear equations that represent lines that are either:* perpendicular or
* parallel to a given line and through a point, e.g., by using the “point-slope” form of the equation.
 |
| **HSG-CO.2****HSG-CO.3****HSG-CO.5****HSG-CO.6****HSG-SRT.1** | **10.G.9** | Draw the results, and interpret transformations on figures in the coordinate plane, e.g.,* translations,
* reflections,
* rotations,
* scale factors, and
* the results of successive transformations.
* Apply transformations to the solutions of problems.
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| **7.G.3** | **10.G.10** | * Demonstrate the ability to visualize solid objects and
* recognize their projections and
* cross sections.
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**Measurement (2011 Conceptual Category: Geometry, *continued*)**
At least four examples solved correctly by the student must be submitted that show *each aspect* of the 2000 standards identified below.

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| **2011 Standards** | **2000 Standards** | **Competency Portfolio Requirements** (from the 2000 Curriculum Frameworks) |
| **7.G.4****7.G.6****HSG-GPE.7** | **10.M.1** | Calculate * perimeter,
* circumference, and
* area of common geometric figures such as parallelograms, trapezoids, circles, and triangles. [Note: Include a variety of figures.]
 |
| **7.G.6****7.G.B.7****HSG-GMD.3** | **10.M.2** | Given the formula, find the * lateral area,
* surface area, and
* volume of prisms, pyramids, spheres, cylinders, and cones,
* find the volume of a sphere with a specified surface area.

[Note: All of the above must be shown for all three-dimensional forms listed.] |
| **7.G.4****7.G.6****7.G.B.7****HSG-GMD.3** | **10.M.3** | * Relate changes in the measurement of one attribute of an object to changes in other attributes, e.g., how changing radius or height of a cylinder affects its surface area or volume.
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**Data, Statistics, and Probability (2011 Conceptual Category: Statistics and Probability)**
At least four examples solved correctly by the student must be submitted that show *each aspect* of the 2000 standards identified below.

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| **2011 Standards** | **2000 Standards** | **Competency Portfolio Requirements** (from the 2000 Curriculum Frameworks) |
| **6.SP.4.MA.4c****6.SP.5****HSS-ID.1****HSS-ID.2****HSS-ID.3****HSS-ID.5****HSS-ID.6****HSS-ID.7** | **10.D.1** | Select, create, and interpret an appropriate graphical representation of a set of data, including:* scatter plot,
* table,
* stem-and-leaf plots,
* box-and-whisker plot,
* circle graph,
* line graph,
* line plot and
* Use appropriate statistics (e.g., mean, median, range, mode) to communicate information about the data.
* Use these notions to compare different sets of data.
 |
| **HSS-ID.6** | **10.D.2** | * Approximate a line of best fit (i.e., **draw a trend line**) given a set of data (e.g., scatter plot).
* Use technology when appropriate. [Note: One trend line is sufficient.]
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