



**High School Model Mathematics Course Crosswalk Introduction:
Comparing the 2011 MA Integrated Pathway Model Mathematics Course Standards
to the
2000 MA High School Course Standards**

On December 21, 2010, the Board of Elementary and Secondary Education adopted the 2011 *Massachusetts Curriculum Framework for Mathematics, Grades Pre-Kindergarten to 12: Incorporating the Common Core State Standards for Mathematics*.

The High School Mathematics Course Crosswalk is intended to assist districts and schools to align curriculum, instruction, and assessments to the new Massachusetts 2011 mathematics standards (MA 2011). For each course, the crosswalk presents the MA 2011 standards side-by-side with the 2000 Massachusetts standards for mathematics (MA 2000). Each course crosswalk begins with a brief How to Read this Crosswalk note, followed by the model course introduction, the eight Standards for Mathematical Practice, and then the crosswalk in table form.

High School Model Pathways

There are two model high school pathways: Traditional (Algebra I, Geometry, & Algebra II) and Integrated (Mathematics I, Mathematics II, & Mathematics III). Both pathways cover the standards identified as necessary for college and career readiness in the High School Conceptual Categories and prepare students for fourth year courses such as those identified in the Curriculum Framework. This crosswalk includes all three courses from each of the pathways. Crosswalks for the two fourth year courses will be released in the future.

For the **traditional pathway**, each MA 2011 course (Algebra I, Geometry, Algebra II) is compared side-by-side with the corresponding MA 2000 course. For the *integrated pathway*, the content of any single MA 2011 course (Mathematics I, Mathematics II, or Mathematics III) is not restricted to any one MA 2000 course (Algebra I, Geometry, or Algebra II); therefore, the Integrated model courses may be matched to standards from any of the three MA 2000 courses.

Format of the High School Model Course crosswalks

The first column of each crosswalk presents the standards for the MA 2011 model course (Algebra I, Geometry, Algebra II, Mathematics I, Mathematics II, or Mathematics III) coded by grade level (9-12), conceptual category, domain, and standard number (see the Table below for conceptual category and domain codes). The second column presents the related MA 2000 standards with the original grade-span and/or course standard codes. The last column provides informational comments, highlighting ways that the MA 2011 standards are different from the MA 2000 standards, as well as the footnotes (in italics) that are included in the model courses in the MA 2011 standards.

Conceptual Category	Domain	Code
Number and Quantity (N)	The Real Number System	N-RN
	Quantities	N-Q
	The Complex Number System	N-CN
	Vector and Matrix Quantities	N-VM
Algebra (A)	Seeing Structure in Expressions	A-SSE
	Arithmetic with Polynomials and Rational Expressions	A-APR
	Creating Equations	A-CED

Table: Codes for Conceptual Categories and Domains (con't)		
Conceptual Category	Domain	Code
Functions (F)	Interpreting Functions	F-IF
	Building Functions	F-BF
	Linear, Quadratic, and Exponential Models	F-LE
	Trigonometric Functions	F-TF
Geometry (G)	Congruence	G-CO
	Similarity, Right Triangles, and Trigonometry	G-SRT
	Circles	G-C
	Expressing Geometric Properties with Equations	G-GPE
	Geometric Measurement and Dimension	G-GMD
	Modeling with Geometry	G-MG
Statistics and Probability (S)	Interpreting Categorical and Quantitative Data	S-ID
	Making Inferences and Justifying Conclusions	S-IC
	Conditional Probability and the Rules of Probability	S-CP
	Using Probability to Make Decisions	S-MD

Mathematical **modeling** is a *Standard for Mathematical Practice* and specific modeling standards appear throughout the high school conceptual categories. In the crosswalk, modeling standards are indicated by an asterisk (*).

Degree of Match

It is important to note that the standards in the crosswalk have varying degrees of correlation. An example of a match where the MA 2000 standard contains elements of the matching MA 2011 standard is:

*(MA 2000) 10.P.3 /A1.P.7 Add, subtract, and multiply polynomials.
Divide polynomials by monomials.*

only partially matches to the following 2011 standard:

(MA 2011) 9-12.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.

For this example the third column includes the comment:

“MA 2011 specifies that polynomials form a system analogous to integers.”

There is not a one-to-one correspondence between the MA 2011 standards and the MA 2000 standards. In some cases several MA 2000 standards are matched to one MA 2011 standard and vice-versa.

Unmatched Standards

For those MA 2011 standards that are not matched with any MA 2000 standards the MA 2000 column is empty and shaded green. There is a clarifying comment in the third column that indicates if the MA 2011 standard is new in the course or new for MA standards.

There are two other categories of unmatched standards located at the end of each grade level crosswalk:

(1) MA 2000 standards that match MA 2011 standards at a different grade level or course, with the best match indicated in the first column; and (2) MA 2000 standards that do not match any MA 2011 standards.

We hope that you find these crosswalks useful. Please email any comments and questions to the Office of Math, Science, and Technology/Engineering at mathsciencetech@doe.mass.edu.