VERMONT
AGENCY OF EDUCATION

Alignment of High School Common Core Priority Performance Indicators and College and Career Readiness Standards for Adult Education for Mathematics

Purpose

This document shows the alignment between the high school Priority Performance Indicators (PPI) of the Mathematics Proficiency-Based Graduation Hierarchy and the College and Career Readiness Standards (CCRS) for Adult Education for mathematics. This is based on Vermont's Education Quality Standards and the Common Core Standards.

Alignment Chart

Critical Proficiency	PPI	CCRS Level E (High School)
Quantitative Reasoning: Reason quantitatively and use units to solve problems.	Reasoning Quantitatively: Reason quantitatively and use units to solve problems. (HSN.Q.A)	Reason quantitatively and use units to solve problems. 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.* (N.Q.1) Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.* (N.Q.3)

Critical Proficiency	PPI	CCRS Level E (High School)
Algebraic Reasoning: Create, interpret, use, and analyze expressions, equations, and inequalities.	Interpreting Expressions: Interpret the structure of expressions. (HSA.SSE.A)	Interpret the structure of expressions. Interpret expressions that represent a quantity in terms of its context.* (A.SSE.1) Interpret parts of an expression, such as terms, factors, and coefficients.* (A.SSE.1a) 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 $(x^2 - y^2)(x^2 + y^2)$. (A.SSE.2)

Critical Proficiency	PPI	CCRS Level E (High School)
Algebraic Reasoning (*continued*)	Creating Equations: Create equations that describe numbers or relationships. (HSA.CED.A)	Create equations that describe numbers or relationships. 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.* (A.CED.1) Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* (A.CED.2) Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non- viable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.* (A.CED.3) 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.* (A.CED.4)
Algebraic Reasoning (*continued*)	Solving Equations: Solve equations and inequalities in one variable. (HSA.REI.B)	Solve equations and inequalities in one variable. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. (A.REI.3) Solve quadratic equations in one variable. (A.REI.4)

VERMONT
AGENCY OF EDUCATION

Critical Proficiency	PPI	CCRS Level E (High School)
Algebraic Reasoning (*continued*)	Graphing Equations- Represent and solve equations and inequalities graphically. (HSA.REI.D)	Represent and solve equations and inequalities graphically. 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). (A.REI.10)
Functional Reasoning: Use linear and non-linear functions to interpret and analyze a variety of contexts.	Function Notation: Understand the concept of a function and use function notation. (HSF.IF.A)	Understand the concept of a function and use function notation. 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 $y = f(x)$. (F.IF.1) Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context. (F.IF.2)

VERMONT
AGENCY OF EDUCATION

Critical Proficiency	PPI	CCRS Level E (High School)
Functional Reasoning (*continued*)	Analyzing Functions: Analyze linear and non-linear functions using different representations to solve problems. (HSF.IF.C, HSF.LE.A)	Analyze functions using different representations. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* (F.IF.7) Use properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in an exponential function and then classify it as representing exponential growth or decay. (F.IF.8b) Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change. (F.IF.9)
Functional Reasoning (*continued*)	Building Functions: Build a function that models a relationship between two quantities. (HSF.BF.A)	Build a function that models a relationship between two quantities. Write a function that describes a relationship between two quantities.* (F.BF.1)
Geometric Reasoning: Apply geometric concepts to solve problems in a variety of contexts.	Geometric Theorems: Prove geometric theorems. (HSG.CO.C)	*No 1:1 relationship.* Experiment with transformations in the plane. 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. (G.CO.1) *This is part of HSG.CO.A.*

VERMONT
AGENCY OF EDUCATION

Critical Proficiency	PPI	CCRS Level E (High School)
Geometric Reasoning (*continued*)	Right Triangle Trigonometry: Define trigonometric ratios and solve problems involving right triangles. (HSG.SRT.C)	*No 1:1 relationship.* Prove theorems involving similarity. Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures. (G.SRT.5) *This is part of HSG.SRT.B.*
Statistical Reasoning: Interpret and apply statistics and probability to analyze data, justify conclusions, and make inferences.	Single Count Data: Summarize, represent, and interpret data on a single count or measurement variable. (HSS.ID.A)	Summarize, represent, and interpret data on a single count or measurable variable. Represent data with plots on the real number line (dot plots, histograms, and box plots). (S.ID.1) Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers). (S.ID.3)
Statistical Reasoning (*continued*)	Summarize categorical data: summarize, represent, and interpret data on two categorical and quantitative variables (HSS.ID.B)	Summarize, represent, and interpret data on two categorical and quantitative variables. 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. (S.ID.5) [Also see 8.SP.4]