

A chalkboard with various mathematical formulas written in white chalk. A hand is visible on the right side, holding a piece of white chalk and writing on the board. The formulas include MV^2 , $\frac{1}{2}MV^2$, and $(MR^2 + I)$.

*Pennsylvania Alternate System of Assessment
(PASA)*

Alternate Assessment Anchors
and Alternate Eligible Content

MATHEMATICS

Grades 7 and 8

The Layout of the PSSA Assessment Anchors and PASA Assessment Anchors Alignment Document

Math

PSSA Numbering system

Example: M3.A.1.1

M = Math
 3 = Grade
 A = Reporting category (e.g., Numbers & Operations, Measurement, Geometry, Algebraic Concepts, Data Analysis & Probability)
 1 = Assessment anchor
 1 = Sub assessment anchor

PASA Numbering system

Example: M3&4.AA.1.1a (LC)

M = Math
 3&4 = Grade
 1st A = Reporting category
 2nd A = Alternate assessment
 1 = Assessment anchor
 1 = Sub assessment anchor
 a = Eligible content
 LC = Level

PSSA Assessment Anchor

PASA Assessment Anchor

M3.A Numbers and Operations M4.A			
M3.A.1 M4.A.1	Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems.	M3&4.AA.1 Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems.	
PSSA ASSESSMENT ANCHOR		PASA ASSESSMENT ANCHOR	PASA ELIGIBLE CONTENT
GRADE 3			
M3.A.1.1 Apply place-value concepts and numeration to counting, ordering, grouping, and equivalency. M3.A.1.2 Use fractions to represent quantities as part of a whole or part of a set.	M4.A.1.1 Use models and/or words to represent quantities as decimals, fractions, or mixed numbers.	M3&4.AA.1.1 Apply numeracy concepts and use models and fractions to represent quantities as part of a whole or part of a set.	M3&4.AA.1.1 (LA) Matches 2 sets of items with 1 item each – difference between target and closest choice is 12 units – sets are cut to size M3&4.AA.1.1 (LB) Matches numeral to quantity ≤ 5 – the target and 1 set are within +/- 5 M3&4.AA.1.1a (LC) Matches numeral to quantity ≤ 9 – the target and 2 sets are within +/- 5 M3&4.AA.1.1b (LC) Selects item divided evenly...

PSSA Sub Assessment Anchor

PASA Sub Assessment Anchor

PASA Eligible Content

The layout of this document reflects the organization of the PSSA assessment anchor content standards - see 2007 PSSA Technical Report for Reading and Mathematics: Grades 3-8 and 11 (page A-2) (attached on the next page).

**PASA ASSESSMENT ANCHORS AND ELIGIBLE CONTENT
MATH
GRADES 7 & 8**

M7.A M8.A		Numbers and Operations	
Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems.		M7&8.AA.1 Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems.	
PSSA ASSESSMENT ANCHOR		PASA ASSESSMENT ANCHOR	PASA ELIGIBLE CONTENT
GRADE 7	GRADE 8		
M7.A.1.1 Express numbers in equivalent forms.	M8.A.1.1 Represent numbers in equivalent forms.	M7&8.AA.1.1 Express equivalencies with numbers and quantities (match).	M7&8.AA.1.1a (LA) Matches identical numbers from 1-2 M7&8.AA.1.1b (LA) Matches 2 sets of items with 1-2 items each M7&8.AA.1.1 (LB) Matches numeral to quantity
M7.A.1.2 Compare quantities and/or magnitudes of numbers.		M7&8.AA.1.2 Compare quantities and magnitudes of numbers including <ul style="list-style-type: none"> • scan the array, • compare quantities, • count items, and • identify, count, and compare money/prices. 	M7&8.AA.1.2a (LA) Scans materials M7&8.AA.1.2b (LA) Selects set with 1 M7&8.AA.1.2c (LA) Selects set with most/least – M7&8.AA.1.2d (LA) Selects one- or five-dollar bill M7&8.AA.1.2a (LB) Counts aloud items or dollars starting at 2 or more with bridge M7&8.AA.1.2b (LB) Counts out items or dollars from a larger set M7&8.AA.1.2c (LB) Selects 1, 5, 10, or 25 cents based on value M7&8.AA.1.2d (LB) Orders 3 sets of evenly spaced items ≤ 19 M7&8.AA.1.2e (LB) Orders 3 consecutive numbers or prices

			<p>M7&8.AA.1.2a (LC) Counts aloud items or money using a combination of 1s and 5s or 1s and 10s</p> <p>M7&8.AA.1.2b (LC) Counts aloud coins</p> <p>M7&8.AA.1.2c (LC) Counts out a combination of one- and five-dollar bills or one- and ten-dollar bills from a larger set</p> <p>M7&8.AA.1.2d (LC) Counts out five-dollar bills to purchase item</p> <p>M7&8.AA.1.2e (LC) Selects item that can be purchased for the price named</p> <p>M7&8.AA.1.2f (LC) Orders 4 non consecutive numbers</p>
M7.A.2 M8.A.2	Understand the meanings of operations, use operations and understand how they relate to each other.	M7&8.AA.2 Understand the meanings of operations, use operations and understand how they relate to each other.	
M7.A.2.1	Complete calculations by applying the order of operations.	M8.A.2.1	Complete calculations by applying the order of operations.
M7.A.2.2	Solve problems using ratios, proportions, percents, and/or rates.	M7&8.AA.2.2	Solve problems involving proportions (read, select, and determine sum of fractions).
			<p>M7&8.AA.2.2 (LB) Selects item divided evenly and in the number of pieces specified</p> <p>M7&8.AA.2.2a (LC) Selects item divided evenly and in the number of pieces specified</p> <p>M7&8.AA.2.2b (LC) Selects picture with biggest/smallest fraction</p> <p>M7&8.AA.2.2c (LC) Reads simple fractions</p> <p>M7&8.AA.2.2d (LC) Selects sum of 2 moveable figures</p>
M7.A.3 M8.A.3	Compute accurately and fluently and make reasonable estimates.	M7&8.AA.3 Compute accurately and fluently and make reasonable estimates.	
M7.A.3.1	Apply estimation strategies to a variety of problems.	M7&8.AA.3.1	Apply estimation strategies (match approximately equal quantities).
			M7&8.AA.3.1 (LC) Selects quantity that is enough

	M8.A.3.1 Determine the appropriateness of overestimating, underestimating or calculating an exact answer in problem-solving situations.		
M7.A.3.2 Compute accurately with and without use of a calculator.		M7&8.AA.3.2. Computes accurately (add, subtract, multiply, and divide).	<p>M7&8.AA.3.2a (LB) Adds 2 numbers or prices by counting M7&8.AA.3.2b (LB) Adds 3 numbers named and shown with sums ≤ 19 by counting M7&8.AA.3.2c (LB) Subtracts 2 numbers or dollars by counting items</p> <p>M7&8/AA.3.2a (LC) Adds 2 numbers or prices in a word problem M7&8.AA.3.2b (LC) Adds 3 numbers in a word problem M7&8.AA.3.2c (LC) Selects equation required to solve an addition word problem M7&8.AA.3.2d (LC) Subtracts 2 numbers or prices in a word problem M7&8.AA.3.2e (LC) Selects equation required to solve a subtraction word problem M7&8.AA.3.2f (LC) Multiplies numbers by counting M7&8.AA.3.2g (LC) Divides items by counting</p>
	M8.A.3.2 Use estimation strategies in problem-solving situations.		
M8.A.3.3 Compute and/or explain operations with integers, fractions, and/or decimals.			

M7.B M8.B Measurement			
M7.B.1 M8.B.1 Demonstrate an understanding of measurable attributes of objects and figures, and the units, systems and processes of measurement.		M7&8.BA.1 Demonstrate an understanding of measurable attributes of objects and figures, and the units, systems and processes of measurement.	
M7.B.1.1 Add, subtract, or convert measurements.	M8.B.1.1 Convert measurements.	M7&8.BA.1.1 Demonstrates understanding of measurements including <ul style="list-style-type: none"> • match and compare length, • match and compare area, • match and compare volume, • match and compare capacity, and • match and compare time. 	M7&8.BA.1.1a (LA) Matches objects, pictures of items of same length, photographs of items of same length M7&8.BA.1.1b (LA) Selects longest/shortest object, picture of item, photograph of item M7&8.BA.1.1c (LA) Matches identical shapes, objects, pictures, photographs of same size, M7&8.BA.1.1d (LA) Selects biggest/smallest shape, object, picture, photograph of item M7&8.BA.1.1e (LA) Matches items with same volume M7&8.BA.1.1f (LA) Selects biggest/smallest object by volume M7&8.BA.1.1g (LA) Matches items with same capacity M7&8.BA.1.1h (LA) Selects item that holds the most/least M7&8.BA.1.1i (LA) Matches item to space M7&8.BA.1.1j (LA) Selects full/empty item M7&8.BA.1.1k (LA) Selects clock by function M7&8.BA.1.1l (LA) Matches identical digital time
			M7&8.BA.1.1a (LB) Selects longest/shortest distance M7&8.BA.1.1b (LB) Reads analog time M7&8.BA.1.1c (LB) Reads digital time M7&8.BA.1.1d (LB) Selects activity that takes the most/least amount of time
			M7&8.BA.1.1a (LC) Matches closest digital

			<p>times</p> <p>M7&8.BA.1.1b (LC) Reads analog time</p> <p>M7&8.BA.1.1c (LC) Determines duration or wait time given 2 times</p> <p>M7&8.BA.1.1d (LC) Determines time in a word problem with hours and a starting time</p>
M7.B.2	Apply appropriate techniques, tools and	M7&8.BA.2	Apply appropriate techniques, tools and formulas to determine
M8.B.2	formulas to determine measurements.	measurements.	
M7.B.2.1 Develop, use, and/or describe strategies to find the measure of length, perimeter, circumference, area, or volume.		<p>M7&8.BA.2.1 Develop strategies for measurement including</p> <ul style="list-style-type: none"> • measure length, • measure area, and • measure volume. 	<p>M7&8.BA.2.1a (LB) Measures length of item</p> <p>M7&8.BA.2.1b (LB) Measures item area by counting</p> <p>M7&8.BA.2.1c (LB) Selects largest/smallest area by counting units</p> <p>M7&8.BA.2.1d (LB) Selects ½-cup measure</p>
			<p>M7&8.BA.2.1a (LC) Measures length of item to the 1/2-inch mark</p> <p>M7&8.BA.2.1b (LC) Measures to 1/2-cup using a measuring cup</p> <p>M7&8.BA.2.1c (LC) Measures whole number amount using 1/2 cup</p>
	<i>M8.B.2.1 Determine the measurement of a missing side(s) or angle(s) in a polygon.</i>		
M7.B.2.2 Construct, interpret, and/or use scale drawings to solve real-world problems.			
M8.B.2.2 Use, describe, and/or develop procedures to determine measures of perimeter, circumference, area, surface area, and/or volume.			

M7.C			
M8.C			
Geometry			
M7.C.1	Analyze characteristics and properties of two- and three-dimensional geometric shapes and demonstrate understanding of geometric relationships.	M7&8CA.1 Analyze characteristics and properties of two- and three- dimensional geometric shapes and demonstrate understanding of geometric relationships.	
M8.C.1			
M7.C.1.1 Define and/or apply basic properties of two- and three-dimensional geometric shapes.	M8.C.1.1 Identify, use, and/or describe properties of angles, triangles, quadrilaterals, circles, pyramids, cubes, prisms, spheres, cones, and/or cylinders.	M7&8.CA.1.1. Use basic properties of two- and three-dimensional figures (sort).	M7&8.CA.1.1 (LA) Sorts 1 object into 1 of 3 existing groups M7&8.CA.1.1 (LB) Sorts 8 items into 4 groups M7&8.CA.1.1 (LC) Sorts 9 items into 4 groups
M7C.1.2 <i>Identify congruence and/or similarity in polygons.</i>			
	M8.C.1.2 <i>Compute measures of sides of right triangles using the Pythagorean Theorem.</i>		
M7.C.2		Identify and/or apply concepts of transformations or symmetry.	
M8.C.2			
<i>Not assessed.</i>			
M7.C.3		Locate points or describe relationships using the coordinate plane.	
M8.C.3			
M7.C.3.1 <i>Locate, plot, and/or describe points on a coordinate plane.</i>	M8.C.3.1 <i>Plot and/or identify ordered pairs on a coordinate plane.</i>		

M7.D			
M8.D Algebraic Concepts			
M7.D.1		Demonstrate an understanding of patterns, relations and functions.	
M8.D.1			
<i>M7.D.1.1</i>	<i>Recognize, reproduce, extend, and/or describe patterns.</i>	<i>M8.D.1.1</i>	<i>Analyze, extend, or develop descriptions of patterns or functions.</i>
M7.D.2		Represent and/or analyze mathematical situations using numbers, symbols, words, tables and/or graphs.	
M8.D.2			
<i>M7.D.2.1</i>	<i>Select and/or use appropriate strategies to solve or represent equations or expressions.</i>	<i>M8.D.2.1</i>	<i>Select and/or use a strategy to simplify an expression, solve an equation or inequality and/or check the solution for accuracy.</i>
<i>M7.D.2.2</i>	<i>Create and/or interpret expressions, equations, or inequalities that model problem situations</i>	<i>M8.D.2.2</i>	<i>Create and/or interpret expressions, equations, or inequalities that model problem situations.</i>
M7.D.3		Analyze change in various contexts.	
M8.D.3			
<i>M7.D.3.1</i>	<i>Describe the relationship between two variables (e.g., time, temperature).</i>		

M7.D.4 M8.D.4	Describe or use models to represent quantitative relationships.		
	M8.D.4.1 <i>Represent relationships with tables or graphs on the coordinate plane.</i>		

M7.E M8.E	Data Analysis and Probability		
M7.E.1 M8.E.1	Formulate or answer questions that can be addressed with data and/or organize, display, interpret, or analyze data.	M7&8.EA.1 Formulate or answer questions that can be addressed with data and/or organize, display, interpret, or analyze data.	
M7.E.1.1 Interpret data shown in complex data displays.	M8.E.1.1 Choose, display, or interpret data (tables, charts, graphs, etc.).	M7&8.EA.1.1 Interpret data displayed, including <ul style="list-style-type: none"> interpret graphs and interpret tables. 	M7&8.EA.1.1a (LB) Selects largest/smallest value M7&8.EA.1.1b (LB) Selects largest/smallest value from graph M7&8.EA.1.1c (LB) Locates number described in a 7-8 item display M7&8.EA.1.1 (LC) Locates number described in a 9-10 item, 3-variable display
		M7&8.EA.1.2 Describe data using mean, median, or mode.	M7&8.EA.1.2 (LC) Selects mode on graph
M7.E.2 M8.E.2	Select and/or use appropriate statistical methods to analyze data.	M7&8.E.2 Select and/or use appropriate statistical methods to analyze data.	
M7.E.2.1 Describe, compare, and/or contrast data using mean, median, mode, or range.			

M7.E.3 M8.E.3	Understand and/or apply basic concepts of probability or outcomes.	M7&8.EA.3 Understand and/or apply basic concepts of probability or outcomes.	
M7.E.3.1 Determine theoretical or experimental probability.	M8.E.3.1 Calculate the probability of an event.	M7&8.EA.3.1 Determine the probability of an event.	M7&8.EA.3.1 (LC) Selects most/least likely item given the characteristics of a population
	M8.E.3.2 <i>Determine the number of combinations and/or permutations for an event.</i>		

M7.E.4 M8.E.4	Develop and/or evaluate inferences and predictions or draw conclusions based on data or data displays.	M7&8.EA.4 Develop and/or evaluate inferences and predictions or draw conclusions based on data or data displays.	
M7.E.4.1 Draw conclusions and/or make predictions based on data displays.	M8.E.4.1 Draw conclusions, make inferences, and/or evaluate hypotheses based on statistical and data displays.		