



Alignment Document

State of Texas And Aventa Learning Pre-Algebra

Pre-Algebra 2005-2007 Benchmark Blueprint

State Standard Number	State Standard Area / Description	Unit Name	Course Topic Description
0	Number, operation, and quantitative reasoning.		
111.24.8.1	The student understands that different forms of numbers are appropriate for different situations.		
111.24.8.1.A	compare and order rational numbers in various forms including integers, percents, and positive and negative fractions and decimals;		
111.24.8.1.B	select and use appropriate forms of rational numbers to solve real-life problems including those involving proportional relationships;	Word Problems	Translating English to Math
		Word Problems	Strategies
111.24.8.1.C	approximate (mentally and with calculators) the value of irrational numbers as they arise from problem situations (such as pi, square root of 2); and	Factoring and Geometric Formulas	Geometric Formulas
111.24.8.1.D	express numbers in scientific notation, including negative exponents, in appropriate problem situations.	Fractions	Negative Exponents
111.24.8.2	The student selects and uses appropriate operations to solve problems and justify solutions.		
111.24.8.2.A	select appropriate operations to solve problems involving rational numbers and justify the selections;	Word Problems	Translating English to Math
		Word Problems	Strategies

111.24.8.2.B	use appropriate operations to solve problems involving rational numbers in problem situations;	Word Problems	Translating English to Math
		Word Problems	Strategies
111.24.8.2.C	evaluate a solution for reasonableness; and		
111.24.8.2.D	use multiplication by a constant factor (unit rate) to represent proportional relationships.		
0	Patterns, relationships, and algebraic thinking.		
111.24.8.3	The student identifies proportional or non-proportional linear relationships in problem situations and solves problems.		
111.24.8.3.A	compare and contrast proportional and non-proportional linear relationships; and		
111.24.8.3.B	estimate and find solutions to application problems involving percents and other proportional relationships such as similarity and rates.	Decimals and Percents	Percents
111.24.8.4	The student makes connections among various representations of a numerical relationship.		
111.24.8.4.A	The student is expected to generate a different representation of data given another representation of data (such as a table, graph, equation, or verbal description).	Equations	Linear Equations
		Probability and Data Analysis	Probability
111.24.8.5	The student uses graphs, tables, and algebraic representations to make predictions and solve problems.		
111.24.8.5.A	predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations; and	Equations	Linear Equations
		Probability and Data Analysis	Probability
111.24.8.5.B	find and evaluate an algebraic expression to determine any term in an arithmetic sequence (with a constant rate of change).		



0	Geometry and spatial reasoning.		
111.24.8.6	The student uses transformational geometry to develop spatial sense.		
111.24.8.6.A	generate similar figures using dilations including enlargements and reductions; and		
111.24.8.6.B	graph dilations, reflections, and translations on a coordinate plane.		
111.24.8.7	The student uses geometry to model and describe the physical world.		
111.24.8.7.A	draw three-dimensional figures from different perspectives;		
111.24.8.7.B	use geometric concepts and properties to solve problems in fields such as art and architecture;		
111.24.8.7.C	use pictures or models to demonstrate the Pythagorean Theorem; and	Factoring and Geometric Formulas	Geometric Formulas
111.24.8.7.D	locate and name points on a coordinate plane using ordered pairs of rational numbers.	Equations	Linear Equations
0	Measurement.		
111.24.8.8	The student uses procedures to determine measures of three-dimensional figures.		
111.24.8.8.A	find lateral and total surface area of prisms, pyramids, and cylinders using concrete models and nets (two-dimensional models);		
111.24.8.8.B	connect models of prisms, cylinders, pyramids, spheres, and cones to formulas for volume of these objects; and		
111.24.8.8.C	estimate measurements and use formulas to solve application problems involving lateral and total surface area and volume.		
111.24.8.9	The student uses indirect measurement to solve problems.		
111.24.8.9.A	use the Pythagorean Theorem to solve real-life problems; and	Factoring and Geometric Formulas	Geometric Formulas
111.24.8.9.B	use proportional relationships in similar two-dimensional figures or similar three-dimensional figures to find missing measurements.		

111.24.8.10	The student describes how changes in dimensions affect linear, area, and volume measures.		
111.24.8.10.A	describe the resulting effects on perimeter and area when dimensions of a shape are changed proportionally; and		
111.24.8.10.B	describe the resulting effect on volume when dimensions of a solid are changed proportionally.		
0	Probability and statistics.		
111.24.8.11	The student applies concepts of theoretical and experimental probability to make predictions.		
111.24.8.11.A	find the probabilities of dependent and independent events;	Probability and Data Analysis	Probability
111.24.8.11.B	use theoretical probabilities and experimental results to make predictions and decisions; and		
111.24.8.11.C	select and use different models to simulate an event.	Probability and Data Analysis	Data Analysis Projects
111.24.8.12	The student uses statistical procedures to describe data.		
111.24.8.12.A	select the appropriate measure of central tendency or range to describe a set of data and justify the choice for a particular situation;	Probability and Data Analysis	Probability
111.24.8.12.B	draw conclusions and make predictions by analyzing trends in scatterplots; and		
111.24.8.12.C	select and use an appropriate representation for presenting and displaying relationships among collected data, including line plots, line graphs, stem and leaf plots, circle graphs, bar graphs, box and whisker plots, histograms, and Venn diagrams, with and without the use of technology.	Probability and Data Analysis	Probability
111.24.8.13	The student evaluates predictions and conclusions based on statistical data.		
111.24.8.13.A	evaluate methods of sampling to determine validity of an inference made from a set of data; and		
111.24.8.13.B	recognize misuses of graphical or numerical information and evaluate predictions and conclusions based on data analysis.		

0	Underlying processes and mathematical tools.		
111.24.8.14	The student applies Grade 8 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school.		
111.24.8.14.A	identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics;	Word Problems	Strategies
111.24.8.14.B	use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;	Word Problems	Strategies
111.24.8.14.C	select or develop an appropriate problem-solving strategy from a variety of different types, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem; and	Word Problems	Strategies
111.24.8.14.D	select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.	Basics	Integer Math
		Fractions	Addition and Subtraction
		Decimals and Percents	Decimals
		Decimals and Percents	Percents
		Number Basics	Significant Digits
		Number Basics	Introduction
		Equations	Solving Simple Equations
		Equations	Linear Equations



111.24.8.15	The student communicates about Grade 8 mathematics through informal and mathematical language, representations, and models.		
111.24.8.15.A	communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models; and	Basics	Integer Math
		Fractions	Addition and Subtraction
		Decimals and Percents	Decimals
		Decimals and Percents	Percents
		Number Basics	Significant Digits
		Number Basics	Introduction
		Equations	Solving Simple Equations
		Equations	Linear Equations
111.24.8.15.B	evaluate the effectiveness of different representations to communicate ideas.		
111.24.8.16	The student uses logical reasoning to make conjectures and verify conclusions.		
111.24.8.16.A	make conjectures from patterns or sets of examples and nonexamples; and		
111.24.8.16.B	validate his/her conclusions using mathematical properties and relationships.		