EPAS Standards for Transition - Mathematics
crosswalked to PASS Mathematics

Score Range	EPAS Standard	PASS
Strand: Basic Operations & Applications		
13-15	Perform one-operation computation with whole numbers and decimals	
	Solve problems in one or two steps using whole numbers	
	Perform common conversions (e.g. inches to feet or hours to minutes)	
	Find eqivalent values of coins	
16-19	Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent and calculate a simple average of whole numbers	Grade 8 St. 5.2 a) Find the measures of central tendency (mean, median, and mode) of a set of data and understand why a specific measure provides the most useful information in a given context
	Solve some routine two-step arithmetic problems	
20-23	Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, computing an average with negative integers, and computing with a given average	Grade 8 St. 2.1 b) Rational Numbers and Proportional Reasoning: Use the basic operations on rational numbers to solve problems in real-life situations (e.g. describe the effect of multiplying whole numbers by a fraction or a decimal less than 1).
		Grade 8 St. 2.1. c) Rational Numbers and Proportional Reasoning: Apply ratios and proportions to solve problems.
		Alg II St. 2.11 Solve multistep problmes using concepts such as rate, distance, ratio and proportion, average and percent.
		Alg I St. 2.8 b) Solve two-step and three-step problems using concepts such as rules of exponents, probablity, rate, distance, ratio and proportion, measures of central tendency and percent
		Grade 8 St. 5.2 b) Compute the mean, median, and mode for data sets and understand how additional data in a set may affect the measures of central tendency.
24-27	Solve multistep arithmetic problems that involve planning or converting units of measure (e.g. feet per second to miles per hour)	
28-32	Solve word problems containing several rates, proportions, or percentages	Alg I St. 2.8 b) Solve two-step and three-step problems using concepts such as rules of exponents, probability, rate, distance, ratio and proportion, measures of central tendency and percent.
		Alg II St. 2.11 Solve multistep problmes using concepts such as rate, distance, ratio and proportion, average and percent.

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33-36	Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g. comparing percentages or averages, using several ratios, and finding ratios in geometry settings)	
Strand: Probability, Statistics & Data Analysis		
13-15	Perform a single computation using information from a table or chart	
16-19	Read tables and graphs	Alg I St. 3.1 b) Make valid inferences, predictions, and/or arguments based on data from graphs, tables, and charts.
	Perform computations on data from tables and graphs	Grade 8 St. 5.2 a) Find the measures of central tendency (mean, median, and mode) of a set of data and understand why a specific measure provides the most useful information in a given context.
		Alg I St. 3.1 b) Make valid inferences, predictions, and/or arguments based on data from graphs, tables, and charts.
	Using the relationship between the probablity of an event and the probability of its complement	
20 - 23	Translate from one representation of data to another (e.g. a bar graph to a circle graph)	Alg I St. 3.1 a) Translate from one representation fo data to another and understand that the data can be represented using a variety of tables, graphs, or symbols and that different modes of representation often convey different messages.
		Grade 8 St. 5.1 Select and apply appropriate formats (e.g., line plots, bar graphs, stem-and-leaf plots, scatter plots, histograms, circle graphs) to display collected data.
	Determine the probability of a simple event	Alg I St. 2.8 b) Solve two-step and three-step problems using concepts such as rules of exponents, probability, rate, distance, ratio and proportion, measures of central tendency and percent.
	Exhibit knowledge of simple counting techniques	
24-27	Manipulate data from tables and graphs	Alg I St. 3.1 b) Make valid inferences, predictions, and/or arguments based on data from graphs, tables, and charts.
	Use Venn diagrams in counting	
	Compute straightforward probabilites for common situations	

Alg I - Algebra I; Alg II - Algebra II

28-32	Interpret and use information from figures, tables, and graphs, inclding graphs in the coordinate plane	Alg I St. 3.1 b) Make valid inferences, predictions, and/or arguments based on data from graphs, tables, and charts.
	Apply counting techniques	
	Compute a probability when the event and/or sample space are not given or obvious	Alg I St. 2.8 b) Solve two-step and three-step problems using concepts such as rules of exponents, probability, rate, distance, ratio and proportion, measures of central tendency and percent.
33-36	Analyze and draw conclusions based on information from figures, tables, and graphs, including graphs in the coordinate plane	
	Exhibit knowledge of conditional and joint probability	
Strand: Numbers: Concepts & Properties		
13-15	No standard	
16-19	Recognize one-digit factors of a number	
	Identify a digit's place value	
20-23	Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor	Grade 8 St.2.1 a) Rational Numbers and Proportional Reasoing: Compare and order rational numbers (positive and negative integers, fractions, decimals) in real life situations.
24-27	Work problems involving positive integer exponents, scientific notation, ordering fractions, numerical factors, least common multiple, square roots, and cube roots	
	Determine when an expression is undefined	Alg I St. 1.2 a) Simplify and evaluate linear, absolute value, rational and radical expressions.
	Square numbers and expressions	
	Exhibit some knowledge of the complex numbers	Alg II St. 1.1 Define and perform operations on real and complex numbers.

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28-32	Apply the rules of exponents and number properties - often in a new context - to solve problems that involve even/odd numbers, positive /negative integers, factors/multiples, and prime factorizations	
	Multiply two complex numbers	Alg II St. 1.1 Define and perform operations on real and complex numbers.
33-36	Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers	
	Exhibit knowledge of logarithms and geometric sequences	Alg II St. 2.10 a) Interpret and graph exponential and logarithnic functions
		Alg II St. 3.3 Differentiate between arithmetic and geometric sequences and series.
	Apply properties of complex numbers	
Strand: Algebraic Expressions		
13-15	Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$)	Alg. 1 St. 1.1 Translate word phrases and sentences into expressions and equations and vice versa.
16-19	Combine like terms (e.g., 2x + 5x)	Alg I St. 1.2 a) Simplify and evaluate linear, absolute value, rational and radical expressions
	Substitute whole numbers for unknown quantities to evaluate expressions	
20-23	Manipulate basic algebraic expressions (e.g., substitute integers for unknown quantities, add and subtract simple algebraic expressions, multiply two binomials, and perform straightforward word-to-symbol translations)	Alg. 1 St. 1.1 Translate word phrases and sentences into expressions and equations and vice versa.
		Alg I St. 1.2 b) Simplify polynomials by adding, subtracting or multiplying
24-27	Factor simple quadratics (e.g., the difference of squares and perfect square trinomials)	Alg II. St 2.12 b) Use factoring to find the solution of a polynomial.
	Add, subtract, and multiply polynomials	Alg I St. 1.2 b) Simplify polynomials by adding, subtracting or multiplying

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	Write expressions with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)	
28-32	Manipulate expressions	
	Write expressions for common algebra settings	
33-36	Write expressions that require planning and/or manipulating to accurately model a situation	
Strand: Equations & Inequalities		
13-15	Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals	
16-19	Solve one-step equations having integer or decimal answers	
20-23	Solve routine first-degree equations	Grade 8 St. 1.1 a. Equations: Model, write, and solve 2-step linear questions using a variety of methods
24-27	Solve real-world problems using first-degree equations	Alg I St. 2.6 a) Solve linear equations by graphing or using properties of equality.
		Alg I St. 2.8 a) Use the formulas from measureable attributes of geometric models (perimeter, circumference, area, and volume), science, and statistics to solve problems within an algebraic context.
	Solve first-degree inequalities that do not require reversing the inequality sign	Grade 8 St. 1.2 a) Model, write, and solve 1 step and 2 step linear inequalities with one variable on a number line
	Identify solutions to simple quadratic equations	Alg I St. 2.9 b) Solve quadratic equations by graphing, factoring, or using the quadratic formula.
	Write equations and inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)	Grade 8 St. 4.3 a) Select and apply appropriate formulas for given situations: I. An equation (e.g. D = rt, I = prt)
28-32	Manipulate equations	
	Write equations and inequalities for common algebra settings	

Alg I - Algebra I; Alg II - Algebra II

	Solve absolute value and quadratic equations	Alg I St. 2.9 b) Solve quadratic equations by graphing, factoring, or using the quadratic formula.
		Alg II St. 2.3 Solve quadratic equations by graphing, factoring, completing the square and quadratic formula.
		Alg II St. 2.12 b) Use factoring to find the solutions of a polynomial.
	Solve linear inequalities that require reversing the inequality sign	Grade 8 St.1.2.a Inequalities: Model, write and solve 1-step and 2-step linear inequalities with one variable.
		Alg I St. 2.6 b) Solve linear inequalities by graphing or using properties of inequality.
	Find solutions to systems of linear equations	Alg I St. 2.7 Solve a system of linear equations by graphing, substitution, or elimination.
		Alg II St. 2.2 Solve, graph and analyze systems of linear equations and inequalities.
33-36	Solve simple absolute value inequalities	
	Write equations and inequalities that require planning, manipulating, and/or solving	

Strand: Graphical Representations

13 -15	Identify the location of a point with a positive coordinate on the number line	
16 -19	Locate points on the number line and in the first quadrant	Geometry St. 2.2 Draw and analyze 2- and 3-dimensional figures.
		Geometry St. 3.3 Given a set of points, determine the type of figure based on its properties.
		Alg I St. 2.7 Solve a system of linear equations by graphing, substitution or elimination.
20 -23	Comprehend the concept of length on the number line	
	Locate points in the coordinate plane	Geometry St. 3.1 Use transformations (reflections, rotation, translation) within coordinate geometry.
	Exhibit knowledge of vertical and horizontal lines and of their point of intersection	Alg I St. 2.5 a) Use the slope to differentiate between lines that are parallel, perpendicular, horizontal or vertical.
	Exhibit knowledge of slope	Alg I St. 2.5 b) Interpret the slope and intercepts within the context of everyday life.
24 -27	Identify the graph of a linear inequality on the number line	
	Determine the slope of a line from points or equations	Alg I St. 2.3 Calculate the slope of a line using a graph, an equation, two points or a set of data points.
		Geometry St. 3.2 Use coordinate geometry to find the distance between two points; the midpoint of a segment; and to calculate the slope of parallel, perpendicular, horizontal, and vertical lines

Alg I - Algebra I; Alg II - Algebra II

	Match linear graphs with their equations	
	Find the midpoint of a line segment	Geometry St. 3.2 Use coordinate geometry to find the distance between two points; the midpoint of a segment; and to calculate the slope of parallel, perpendicular, horizontal, and vertical lines.
28 - 32	Match number line graphs with solution sets of linear inequalities	Alg I St. 2.6 c) Match appropriate equations or inequalities (with 1 or 2 variables) to a graph, table, or situation and vice versa.
	Use the distance formula	Geometry St. 3.2 Use coordinate geometry to find the distance between two points; the midpoint of a segment; and to calculate the slope of parallel, perpendicular, horizontal, and vertical lines
		Alg I St. 2.8 b) Solve two-step and three-step problems using concepts such as rules of exponents, probability, rate, distance, ratio and proportion, measures of central tendency and percent
	Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point	Alg I St. 2.5 a) Use the slope to differentiate between lines that are parallel, perpendicular, horizontal or vertical.
		Geometry St. 1.1 a) Identify the relationships of parallel lines with a transveral
	Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)	Alg I St. 2.9 a) Match exponential and quadratic functions to a table, graph, or situation and vice versa.
		Alg II St. 2.5 Interpret the maximum and minimum value and the y-intercept of a quadratic function.
		Alg II St. 2.6 Identify, graph, and write the equations of the conix sections.
33- 36	Match number line graphs with solution sets of simple quadratic inequalities	
	Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$	Alg II St. 2.1 Recognize the parent graph of the function y = x2 and predict the effects of transformations on the parent graph.
		Alg II St. 2.5 Interpret the maximum and minimum value and the y-intercept of a quadratic function.
		Alg II St. 2.12 c) Graph a polynomial and identify the x- and y-intercepts, relative maximums and relative minimums.
	Solve problems integrating multiple algebraic and/or geometric concepts	

Alg I - Algebra I; Alg II - Algebra II

Strand: Properties of Plane Figures		
13 -15		
16 -19		
20 -23	Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90^o, 180^o, and 360^o)	Geometry St. 1.1 b) Identify relationships between pairs of angles
		Geometry St 2.1 b) Apply the interior and exterior angle sum of convex polygons to solve problems.
		Geometry St. 2.6 Find angle measures and arc measures related to circles.
		Geometry St. 4.1 Solve problems using properties of angles (e.g. interior, exterior, complementary, vertical, angle sums, 30-60-90)
24 - 27	Use properties of isosceles triangles	Geometry St.4.1 Solve problems using properties of angles (e.g. interior, exterior, complementary, vertical, angle sums, 30-60-90)
	Recognize Pythagorean triples	
	Use several angle properties to find an unknown angle measure	Geometry St. 1.1 a) Identify the relationships of parallel lines with a transveral
		Geometry St. 2.6 Find angle measures and arc measures related to circles.
28 -32	Apply properties of 30^o-60^o-90^o, 45^o-45^o-90^o, similar, and congruent triangles	Geometry St. 1.2 Determine and use the relationships of congruency and similarity to determine unknown values.
		Geometry St. 2.1 c) Develop and apply the properties of quadrilaterals to solve problems.
		Geometry St. 4.3 Apply the 45-45-90 and 30-60-90 right triangle relationship to solve problems.
	Use the Pythagorean theorem	Geometry St. 4.2 Use the Pythagorean Theorem and its converse to find missing side lengths and to determine acute, right, and obtuse triangles.
33 -36	Draw conclusions based on a set of conditions	Geometry St. 2.1 c) Develop and apply the properties of quadrilaterals to solve problems.
	Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas	Geometry St. 4.2 Use the Pythagorean Theorem and its converse to find missing side lengths and to determine acute, right, and obtuse triangles.
	Use relationships among angles, arcs, and distances in a circle	Geometry St 2.6 Find angle measures and arc measures related to circles
Strand: Measurement		
13 -15	Estimate or calculate the length of a line segment based on other lengths given on a geometric figure	Grade 8 St.4.2 Apply knowledge of ratio and proportion to solve relationships between similar geometric figures.
		Geometry St. 1.2 Determine and use the relationships of congruency and similarity to determine unknown values.
		Geometry St. 4.5 a) Use similar figures to construct ratios and solve for a missing side.
		Geometry St. 4.5 b) Use ratios of similar figures to find distance, perimeter, area, and volume.

Alg I - Algebra I; Alg II - Algebra II

16 -19	Compute the perimeter of polygons when all side lengths are given	Grade 8 St. 4.3 a) Select and apply the appropriate formulas for given situations II. Measurement problems (e.g. p = 2l+2w, v = lwh)
	Compute the area of rectangles when whole number dimensions are given	Grade 8 St. 4.3 a) Select and apply the appropriate formulas for given situations II. Measurement problems (e.g. p = 2l+2w, v = lwh)
20 - 23	Compute the area and perimeter of triangles and rectangles when the problems are simple	Grade 8 St. 4.3 a) Select and apply the appropriate formulas for given situations II. Measurement problems (e.g. p = 2l+2w, v = lwh)
	Use geometric formulas when all necessary information is given	Grade 8 St.4.1 Estimate and find the surface area and volume in real world settings (e.g. unwrap a box to explore surface area; use rie, 1 inch cubes, centimeter cubes, cups …to estimate the volume of boxes, irregular shaped objects, containers).
		Grade 8 St. 4.3 a) Select and apply the appropriate formulas for given situations II. Measurement problems (e.g. p = 2l+2w, v = lwh)
24 -27	Compute areas and circumferences of circles after identifying necessary information	Geometry St. 2.3 Use properties of 2- and 3-dimensional figures to determine unknown values.
		Geometry St. 2.4 Compute the length, perimeter or circumference, area, volume, and surface area of geometric figures with missing information and correctly identify the appropriate unit of measure of each.
	Compute areas of rectangles and triangles when one or more additional simple steps are required	Grade 8 St. 4.3 b) Find the area of a "region of a region" for simple composite figures (e.g. area of a rectangular picture frame)
		Geometry St. 2.3 Use properties of 2- and 3-dimensional figures to determine unknown values.
		Geometry St. 2.4 Compute the length, perimeter or circumference, area, volume, and surface area of geometric figures with missing information and correctly identify the appropriate unit of measure of each.
	Compute the perimeter of simple composite geometric figures with unknown side lengths	Geometry St. 2.3 Use properties of 2- and 3-dimensional figures to determine unknown values.
		Geometry St. 2.4 Compute the length, perimeter or circumference, area, volume, and surface area of geometric figures with missing information and correctly identify the appropriate unit of measure of each.
28 - 32	Use relationships involving area, perimeter, and volume of geometric figures to compute another measure	Geometry St. 2.1 c) Develop and apply the properties of quadrilaterals to solve problems.
		Geometry St. 2.3 Use properties of 2- and 3-dimensional figures to determine unknown values.
33-36	Use scale factors to determine the magnitude of a size change.	
	Compute the area of composite geometric figures when planning or visualization is required.	

Alg I - Algebra I; Alg II - Algebra II

Strand: Functions		
13 -15		
16 -19		
20 - 23	Work with function notation in evaluating simple quadratic functions at integer values	Alg I St. 2.1 d) Evaluate a function using tables, equations, or graphs Alg II St. 2.8 Use functional notation and specify domain and range.
24 -27	Work with function notation in evaluating polynomial functions at integer values	
	Express the sine, cosine, and tangent of an angle in a right triangle as a ratio of given side lengths	Geometry St. 4.4 Express the trigonometric functions as ratios and derive the relationship between sine, cosine, and tangent ratios and use to solve real world problems.
28 -32	Evaluate composite functions at integer values	
	Apply basic trigonometric ratios to solve right-triangle problems	Geometry St. 4.4 Express the trigonometric functions as ratios and derive the relationship between sine, cosine, and tangent ratios and use to solve real world problems.
33 -36	Write an expression for the composite of two simple functions	
	Use trigonometric concepts and basic identities to solve problems	Geometry St. 4.4 Express the trigonometric functions as ratios and derive the relationship between sine, cosine, and tangent ratios and use to solve real world problems.
	Exhibit knowledge of unit circle trigonometry	
	Match graphs of basic trigonometric functions with their equations	

Alg I - Algebra I; Alg II - Algebra II