

Alignment of Khan Academy Lessons/Practice Sets with the Michigan Professional Readiness Exam (Mathematics) and Applied Tasks*

Course Topic	Khan Videos	Khan Practice Sets	Michigan Professional Readiness Objectives	Applied Tasks
Algebraic Expressions			Objectives: 010, 012	
Defining and Using Variables	What is a Variable?		<ul style="list-style-type: none"> Constructing and interpreting algebraic expressions Solving problems involving manipulation of algebraic expressions Demonstrating knowledge of linear, quadratic, polynomial, and rational equations and inequalities <p>OBJECTIVE 010</p>	Are We Alone? Task Involving Formulas Skeleton Tower Problem
Evaluating Algebraic Expressions	Evaluating Expressions With Two Variables	Evaluating Expressions in One Variable Evaluating Expressions in Two Variables		
Translating words into Algebra		Writing Expressions 1 Writing Expressions 2		
Using Formulas	Rearrange Formulas to Isolate a Variable Solving for a Variable Solving for a Variable 2	Solving Equations in Terms of a Variable		
Logarithms	http://www.khanacademy.org/math/algebra/logarithms-tutorial/logarithm_basics/v/logarithms		<ul style="list-style-type: none"> Solving problems involving exponential and logarithmic functions <p>OBJECTIVE 012</p>	

Functions			Objectives: 011, 012	
Definition of Function	Intro to Functions Functional Relationships 1 Testing if a Relationship is a Function		<ul style="list-style-type: none"> Recognizing definitions and representations of functions including piecewise functions and recursive functions Solving problems involving operations on functions Recognizing functions as applied to real world situations Solving problems involving power functions Solving problems involving rationale functions 	Painting by Functions Equation Matcher Motion Capture
Evaluating Functions	Function Example Problems Evaluating a Function			
Graphs of Functions	Functions as Graphs Graphing a Basic Function	Understanding Graphs of Functions Views of a Function		
Domain and Range	Domain of a Function Domain and Range of a Relation Domain and Range of a Function Given a Formula	Domain of a Function Range of a Function Domain and Range		
Operations on Functions	Functions Part 2 Sum of Functions Difference of Functions Product of Functions Quotient of Functions	Evaluating Expressions With Function Notation Evaluating Composite Functions Inverses of Functions		
Inverse Functions	Introduction to Function Inverses Function Inverse Example 1 Function Inverse Example 2 Function Inverse Example 3			
			OBJECTIVES 011 & 012	

Arithmetic			REFRESHER MATH USED THROUGHOUT	
Adding/Subtracting Integers	Adding Integers With Different Signs Adding Negative Numbers	Adding Negative Numbers Adding and Subtracting Negative Numbers		The Locker Problem Number Rules
Multiplying/Dividing Integers	Multiplying Negative Real Numbers Dividing Positive and Negative Numbers Multiplying Numbers With Different Signs	Multiplying and Dividing Negative Numbers Negative Number Word Problems		Never Prime Adding and Subtracting Signed Numbers
Rounding Numbers	Rounding Decimals	Rounding Numbers		
Number Line	Points on a Number Line	Decimals on the Number Line		
Square Roots	Approximating Square Roots	Square Roots Square Roots 2		
Fractions			REFRESHER MATH USED THROUGHOUT	
	Identifying Fraction Parts (conceptual help)	Fraction Word Problems (conceptual help)		
Adding/Subtracting Fractions	Adding and Subtracting Fractions	Adding and Subtracting Fractions		Multiplying Fractions Word Problems
Multiplying Fractions	Multiplying Fractions	Multiplying Fractions		Dividing Fractions Word Problems
Dividing Fractions	Dividing Fractions	Dividing Fractions		Fair Shares- Open-Ended Word Problem Fractions Jigsaw

Decimals and Percents			REFRESHER MATH USED THROUGHOUT	
Place Value	Decimal Place Value	Understanding Decimal's Place Value		Adding and Subtracting Decimals Word Problems Money Word Problem Another Money Word Problem Net Points: Rates and Ratios Activity Math in Special Effects: Ratios Problem
Adding/Subtracting Decimals	Adding Decimals Subtracting Decimals	Adding Decimals Subtracting Decimals		
Multiplying/Dividing Decimals	Multiplying Decimals Dividing Decimals	Multiplying Decimals Dividing Decimals 2		
Solving Percent Problems	Describing the Meaning of Percent Taking Percentages	Percentage Word Problems 1 Percentage Word Problems 2		
Equating Decimals, Percents, Fractions	Representing a Number as a Decimal, Percent, and Fraction	Converting Decimals to Fractions 1 Converting Decimals to Percents		
Simplifying Rates and Ratios	Simplifying Rates and Ratios	Ratio Word Problems		
Real Numbers			REFRESHER MATH USED THROUGHOUT	
Absolute Value	Absolute Value and Number Lines	Absolute Value		Working with Irrational Numbers
Order of Operations Simplifying Exp.	Order of Operations 1	Order of Operations		
Exponents and Roots			REFRESHER MATH USED THROUGHOUT	
Multiplying/Dividing Monomials	Multiplying and Dividing Monomials 1 Multiplying and Dividing Monomials 2 Multiplying and Dividing Monomials 3	Simplifying Rational Expressions 1		Ponzi Schemes Problem Big and Small Numbers in the Physical World Negative Power
Evaluating Rational Exponents/Roots	Radical Equivalent to Rational Exponents	Exponents		

Polynomials			Objective: 012	
Adding/Subtracting Polynomials	Adding and Subtracting Polynomials 1 Adding Polynomials With Multiple Variables	Adding and Subtracting Polynomials	<ul style="list-style-type: none"> Solving problems involving polynomial functions Solving problems involving quadratic functions <p>OBJECTIVE 012</p>	Finding Factors Difference of Squares Exploration Roots of Polynomials Polynomial Relations
Multiplying Polynomials	Multiplying Binomials Multiplying Polynomials	Multiplying Polynomials Multiplying Expressions Multiplying Expressions 1		
Distributive Property	Multiplying Monomials by Polynomials			
Factoring Polynomials	Factoring Quadratic Expressions Factoring Polynomials 1 Factoring Trinomials With a Common Factor Factoring Difference of Squares	Factoring Polynomials 1 Factoring Polynomials With Two Variables Factoring Difference of Squares 2		

Solving Equations and Inequalities			Objective: 012	
Solving Linear Equations	Solving One-Step Equations Two-Step Equations Multi-Step Equation Example Solving Equations With the Distributive Property	One-Step Equations Linear Equations 2 Multi-Step Equations With Distribution	<ul style="list-style-type: none"> Solving problems involving lines and linear functions Solving problems with quadratic functions <p>OBJECTIVE 012</p>	Predicting Sports Records Sky High Scrapers Kitchen Parabolooids (Quadratics Problem) Challenging Equations
Solving Linear Inequalities	One-Step Inequalities Equations and Inequalities Multi-Step Inequalities 3	One-Step Inequalities Linear Inequalities		
Solving Quadratics by Factoring	Solving a Quadratic by Factoring Solving a Quadratic by Factoring 2	Solving Quadratics by Factoring Solving Quadratics by Factoring 2		
Graphing Quadratics	Graphing a Quadratic Function Graphs of Quadratic Functions	Graphs of Quadratic Functions Completing the Square 1 Completing the Square 2		
Solving Quad. by Completing the Square	Solving Quadratics by Completing the Square			
Using the Quadratic Formula	Using the Quadratic Formula Quadratic Formula Application Problem	Quadratic Equation		

Graphs and Linear Functions			Objectives: 012,017	
Word Problems with Linear Equations	Graphing Lines 1 Plotting x-y relationships Graphs of Linear Equations	Identifying Points 2 Graphing Linear Equations	<ul style="list-style-type: none"> Solving problems involving lines and linear functions <p>OBJECTIVE 012</p>	Math in Video Game Design Restaurant Management Problem Temperature Equation Parallel Lines Perpendicular Lines
Writing Equations of Lines	Equation of a Line 1 Equation of a Line- Hairier Example Equation of a Line 3	Slope-Intercept Form Equation of a Line		
Slopes and Intercepts	x and y intercepts x and y intercepts 2 Slope of a Line Graphical Slope of a Line	Solving for the y-intercept Solving for the x-intercept Slope of a Line		
Parallel and Perpendicular Lines	Parallel Line Equation Perpendicular Line Slope Equations of Parallel and Perpendicular Lines Parallel Lines 2	Line Relationships		
Scatter Plots and Lines of Best Fit	Fitting a Line to Data	Plotting the Line of Best Fit		
Graphing Inequalities	Graphing Linear Inequalities in Two Variables 2 Graphing Linear Inequalities in Two Variables 3	Graphs of Inequalities Graphing Inequalities 2	<ul style="list-style-type: none"> Demonstrating knowledge of scatterplots and their characteristics <p>OBJECTIVE 017</p>	
Word Problems with Linear Equations	Basic Linear Equation Word Problems	Linear Equation Word Problems		

Geometry, Trigonometry and Measurement			Objectives: 013, 014,015	
Basic Geometry Scale and Measurement	http://www.khanacademy.org/math/geometry		<ul style="list-style-type: none"> Solving problems involving geometry of two-dimensional figures Solving problems involving geometry of three-dimensional figures Solving problems involving triangles and trigonometry Recognizing the relationships between area formulas of two-dimensional figures Recognizing the relationship between two-dimensional figures and three three-dimensional figures 	Geometry Word Problems from fi.edu Volume of Cylinders
Area, Perimeter, Circumference	Perimeter and Area Basics Area and Perimeter Radius, Diameter and Circumference Area of a Circle	Area 1 Area of Squares and Rectangles Area of Triangles 1 Perimeter 1 Perimeter of Squares and Rectangles Radius, Diameter and Circumference Area of a Circle Area, Perimeter and Volume	<ul style="list-style-type: none"> Recognizing and using formulas involving perimeter, area and volume <p>OBJECTIVE 013</p>	Viewmongus: Calculating Areas of Screens Fruit Boxes: Area and Volume Problem
Pythagorean Theorem	The Pythagorean Theorem Pythagorean Theorem 2	Pythagorean Theorem		
Find Volume of Solids	Solid Geometry Volume	Solid Geometry	<ul style="list-style-type: none"> Recognizing the relationships between volume formulas of three-dimensional figures 	

Convert English/metric units	Applying the Metric System Unit Conversion Converting Units of Length	Units		
Points, Lines and Planes	http://www.khanacademy.org/math/geometry/segments-and-angles		<ul style="list-style-type: none"> Recognizing the relationships between volume formulas of three-dimensional figures 	
			OBJECTIVE 015	
Congruence and Similarity	http://www.khanacademy.org/math/geometry/similarity/triangle-similarity/v/finding-area-using-similarity-and-congruence		<ul style="list-style-type: none"> Demonstrating the knowledge of congruence and similarity 	
			OBJECTIVE 014	
Coordinates and Graphing	http://www.khanacademy.org/math/trigonometry/graphs		<ul style="list-style-type: none"> Demonstrating knowledge of coordinate geometry 	
			OBJECTIVE 013	
Transformations	http://www.khanacademy.org/math/linear-algebra/matrix-transformations		<ul style="list-style-type: none"> Recognizing the composition of two or more transformations 	
			OBJECTIVE 015	
Reflections and Transformations	http://www.khanacademy.org/math/linear-algebra/matrix-transformations/linear-transformations-examples/v/linear-transformation-examples--scaling-and-reflections		<ul style="list-style-type: none"> Recognizing isometries (reflections, rotations, translations and glide reflections) 	
			OBJECTIVE 015	

Statistics and Probability		Objectives: 016, 017, 018, 019	
<p>Statistical Significance, Margin of Error and Confidence Level.</p> <p>Measures of Center (Mean, Median, Mode)</p> <p>Normal Distribution</p>	<p>http://www.khanacademy.org/math/probability</p> <p>http://www.khanacademy.org/math/probability/regression/regression-correlation/v/correlation-and-causality</p> <p>http://www.khanacademy.org/math/probability/statistics-inferential/normal-distribution/v/introduction-to-the-normal-distribution</p>	<ul style="list-style-type: none"> Understand univariate data and distributions <p>OBJECTIVE 016</p>	
<p>Scatterplots & Their Characteristics,</p> <p>Pearson's Coefficient of Correlation</p> <p>Correlation and Causation</p> <p>Linear Regression</p>	<p>http://www.khanacademy.org/math/probability/regression/regression-correlation/e/plotting-the-line-of-best-fit</p> <p>http://www.khanacademy.org/math/probability/statistics-inferential/chi-square/v/pearson-s-chi-square-test-goodness-of-fit</p> <p>http://www.khanacademy.org/math/probability/regression/regression-correlation/v/correlation-and-causality</p> <p>http://www.khanacademy.org/math/probability/regression/regression-correlation/e/plotting-the-line-of-best-fit</p>	<ul style="list-style-type: none"> Understand bivariate data and relationships <p>OBJECTIVE 017</p>	
<p>Sampling</p> <p>Reading Tables</p>	<p>http://www.khanacademy.org/math/probability/statistics-inferential/sampling-distribution/v/central-limit-theorem</p> <p>http://www.khanacademy.org/math/arithmetic/interpreting-data</p>	<ul style="list-style-type: none"> Understand sampling, surveying experimental design, and graphical representation <p>OBJECTIVE 018</p>	

<p>Reading Charts & Graphs</p> <p>Bias, Variance and Standard Deviation</p>	<p>topic/reading_data/e/reading_tables_1</p> <p>http://www.khanacademy.org/math/arithmetic/interpreting-data-topic/reading_data/e/reading_tables_2</p> <p>http://www.khanacademy.org/math/arithmetic/interpreting-data-topic/reading_data/e/reading_bar_charts_1</p> <p>http://www.khanacademy.org/math/probability/descriptive-statistics/variance_std_deviation/v/simulation-showing-bias-in-sample-variance</p>			
<p>Probability Models</p> <p>Probability of Events</p> <p>Venn Diagrams and Probability</p> <p>Permutations</p>	<p>http://www.khanacademy.org/math/probability</p> <p>http://www.khanacademy.org/math/probability/independent-dependent-probability</p> <p>http://www.khanacademy.org/math/probability/independent-dependent-probability/addition_rule_probability/v/probability-with-playing-cards-and-venn-diagrams</p> <p>http://www.khanacademy.org/math/trigonometry/prob_comb/combinatorics_precalc/e/permutations_1</p>		<ul style="list-style-type: none"> Understand Probability Models and Probability Calculation <p>OBJECTIVE 019</p>	

***Based upon the: Alignment of Accuplacer Math Topics and Developmental Math Topics with Khan Academy, the Common Core and Applied Tasks from The New England Board of Higher Education, April 2013**

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