Grade 8 Math PreAlgebra

Unit	GCG	Khan Academy Videos
1 – Rational and Irrational Numbers	1 of 1	❖ Understanding square roots ❖ Finding cube roots ❖ Introduction to rational and irrational numbers ❖ Recognizing irrational numbers ❖ Approximating irrational number exercise example ❖ Fraction to decimal ❖ Converting fractions to decimals ❖ Converting a fraction to a repeating decimal ❖ Converting repeating decimals to fractions 1 ❖ Converting repeating decimals to fractions 2 ❖ Converting decimals to fractions 2 (ex 1) ❖ Converting decimals to fractions 2 (ex 2)
2 – Solving Multi-Step Equations	1 of 1	❖ Writing simple algebraic expressions ❖ Writing algebraic expressions ❖ Writing algebraic expressions word problem ❖ Variables on both sides ❖ Example 1: Variables on both sides ❖ Example 2: Variables on both sides ❖ Equation special cases ❖ Ex 2: Multi-step equation ❖ Solving equations with the distributive property ❖ Solving equations with the distributive property 2 ❖ Ex 1: Distributive property to simplify ❖ Ex 2: Distributive property to simplify ❖ Ex 3: Distributive property to simplify ❖ Number of solutions to linear equations ❖ Number of solutions to linear equations ex 2 ❖ Number of solutions to linear equations ex 3
3 - Angle – Pair Relationships	1 of 1	❖ Complementary and supplementary angles ❖ Find measure of complementary angles ❖ Find measure of supplementary angles ❖ Angles formed by parallel lines and transversals ❖ Figuring out angles between transversal and parallel lines ❖ Using algebra to find measures of angles formed from transversal ❖ Proof: Sum of measures of angles in a triangle are 180 ❖ Triangle angle example 1 ❖ Triangle angle example 2 ❖ Triangle angle example 3 ❖ Challenging triangle angle problem ❖ Finding more angles

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4 – Pythagorean Theorem	1 of 1	❖ The Pythagorean theorem intro ❖ Pythagorean theorem ❖ Pythagorean theorem 2 ❖ Pythagorean theorem 1 ❖ Pythagorean theorem 3 ❖ Thiago asks: How much time does a goalkeeper have to react to a penalty kick? ❖ Pythagorean theorem in 3D
5 - Volume	1 of 1	❖ Find the volume of a triangular prism and cube ❖ Cylinder volume and surface area ❖ Volume of a cone ❖ Volume of a sphere
6 – Properties of Exponents	1 of 1	❖ Introduction to exponents ❖ Exponent example 1 ❖ Exponent example 2 ❖ Exponent properties involving products ❖ Exponent properties involving quotients ❖ Products and exponents raised to an exponent properties ❖ Exponent rules part 1 ❖ Exponent rules part 2 ❖ Negative exponents ❖ Zero, negative, and fractional exponents
7 – Scientific Notation	1 of 1	❖ Introduction to scientific notation ❖ Scientific notation ❖ Scientific notation examples ❖ Scientific notation example 1 ❖ Scientific notation example 2 ❖ Multiplying and dividing in scientific notation ❖ Multiplying in scientific notation ❖ Multiplying in scientific notation example ❖ Dividing in scientific notation example
8 – Transformations	1 of 2	❖ Translations of polygons ❖ Determining a translation for a shape ❖ Reflection and mapping points example ❖ Rotation of polygons example ❖ Performing a rotation to match figures ❖ Rotating segment about origin example ❖ Testing congruence by transformations example ❖ Another congruence by transformation example ❖ Testing similarity through transformations ❖ Similar triangles
	2 of 2	❖ Thinking about dilations ❖ Scaling down a triangle by half

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9 – Introduction to Functions	1 of 2	❖ What is a function? ❖ Difference between equations and functions ❖ Evaluating with function notation ❖ Understanding function notation (example 1) ❖ Understanding function notation (example 2) ❖ Understanding function notation (example 3) ❖ Relations and functions ❖ Testing if a relationship is a function ❖ Domain and range of a relation ❖ Domain and range of a function ❖ Domain and range 1 ❖ Graphical relations and functions ❖ Domain and range from graphs
	2 of 2	❖ Comparing linear functions ❖ Comparing linear functions 1 ❖ Comparing linear functions 2 ❖ Comparing linear functions 3
10 – Applications of Functions	1 of 3	❖ Slope of a line ❖ Slope of a line 2 ❖ Slope of a line 3 ❖ Graphical slope of a line ❖ Slope example ❖ Graphing proportional relationships example ❖ Graphing proportional relationships example 2 ❖ Graphing proportional relationships example 3 ❖ Constructing an equation for a proportional relationship ❖ Slope and rate of change ❖ Constructing and interpreting a linear function ❖ Constructing a linear function word problem ❖ Constructing linear graphs
	2 of 3	❖ Interpreting intercepts of linear functions ❖ Interpreting linear functions example ❖ Graphing a line in slope intercept form ❖ Multiple examples of constructing linear equations in slope-intercept form ❖ Interpreting linear functions example ❖ Interpreting intercepts of linear functions ❖ Analyzing and identifying proportional relationships ❖ Analyzing proportional relationships in a graph ❖ Analyzing proportional relationships from a table ❖ Comparing proportional relationships ❖ Recognizing linear functions ❖ Linear and nonlinear functions (example 1) ❖ Linear and nonlinear functions (example 2) ❖ Linear and nonlinear functions (example 3)
	3 of 3	❖ Constructing a scatter plot ❖ Interpreting a trend line ❖ Estimating the line of best fit exercise

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11 – Systems of Linear Equations	1 of 1	❖ Solving linear systems by graphing ❖ Solving systems graphically ❖ Graphing systems of equations ❖ Graphical systems application problem ❖ Example 2: Graphically solving systems ❖ Example 3: Graphically solving systems ❖ Testing a solution for a system of equations ❖ The substitution method ❖ Substitution method 2 ❖ Substitution method 3 ❖ Example 1: Solving systems by substitution ❖ Example 2: Solving systems by substitution ❖ Example 3: Solving systems by substitution ❖ Practice using substitution for systems ❖ Example 1: Solving systems by elimination ❖ Example 2: Solving systems by elimination ❖ Example 3: Solving systems by elimination ❖ Addition elimination method 1 ❖ Addition elimination method 2 ❖ Addition elimination method 3 ❖ Addition elimination method 4 ❖ Using a system of equations to find the price of apples and oranges ❖ Linear systems word problem with substitution ❖ Systems of equation to realize you are getting ripped off ❖ Thinking about multiple solutions to a system of equations
12 – Statistical Tables	1 of 1	❖ Two-way frequency tables and Venn diagrams ❖ Two-way relative frequency tables ❖ Interpreting two way tables ❖ Analyzing trends in categorical data

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13 – Algebra Readiness	1 of 3	❖ Writing simple algebraic expressions ❖ Writing algebraic expressions ❖ Writing algebraic expressions word problem ❖ Variables on both sides ❖ Example 1: Variables on both sides ❖ Example 2: Variables on both sides ❖ Equation special cases ❖ Ex 2: Multi-step equation ❖ Solving equations with the distributive property ❖ Solving equations with the distributive property 2 ❖ Ex 1: Distributive property to simplify ❖ Ex 2: Distributive property to simplify ❖ Ex 3: Distributive property to simplify ❖ Number of solutions to linear equations ❖ Number of solutions to linear equations ex 2 ❖ Number of solutions to linear equations ex 3
	2 of 3	❖ Constructing and interpreting a linear function ❖ Constructing a linear function word problem ❖ Constructing linear graphs ❖ Interpreting intercepts of linear functions ❖ Interpreting linear functions example ❖ Graphing a line in slope intercept form ❖ Multiple examples of constructing linear equations in slope-intercept form ❖ Interpreting linear functions example ❖ Interpreting intercepts of linear functions
	3 of 3	❖ Solving linear systems by graphing ❖ Solving systems graphically ❖ Graphing systems of equations ❖ Graphical systems application problem ❖ Example 2: Graphically solving systems ❖ Example 3: Graphically solving systems ❖ Testing a solution for a system of equations