WAKE COUNTY PUBLIC SCHOOL SYSTEM

Middle School Programs
Building Healthy Core Learning
Common Core Math I, Unit 1

Math I UNIT 1 OVERVIEW: One Variable Equations and Inequalities

Unit Outcomes At the end of this unit, your student should be able to:	**Key Vocabulary** Terms to deepen the student's understanding
✓ Write and simplify expressions ✓ Interpret parts of expressions such as terms, factors, constants, and coefficients ✓ Solve linear equations with rational number coefficients ✓ Create equations and inequalities with one variable ✓ Determine how many solutions an equation has ✓ Use the Pythagorean Theorem to find missing sides of a right triangle ✓ Use the Pythagorean Theorem to find the distance between two points ✓ Know the difference between equations and inequalities	✓ Algebraic Expression ✓ Coefficient ✓ Constant ✓ Integer ✓ Distributive Property ✓ Equivalent Expression ✓ Like Term ✓ Order of Operations ✓ Substitute ✓ Term ✓ Algebraic Equation ✓ Inverse Operations ✓ Undefined ✓ Solution ✓ Distance Formula ✓ Hypotenuse ✓ Pythagorean Theorem ✓ Pythagorean Triple ✓ Simplify ✓ Variable ✓ Identities ✓ Linear Inequality ✓ Leg ✓ Right Angle
Key Standards Addressed Connections to Common Core/NC Essential Standards	**Where This Unit Fits** Connections to prior and future learning
8.EE.7 Solve equations with one variable using rational numbers (may have one solution, infinite solutions, or no solution) 8.G.6 Explain the Pythagorean Theorem 8.G.7 Use the Pythagorean Theorem to find missing sides of a right triangle 8.G.8 Use the Pythagorean Theorem to find the distance between points N-RN.1 Explain the meaning of rational exponents allowing for a notation of radicals in terms of rational exponents N-RN.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents N-Q.1 Choose and interpret units consistently in formulas	**Coming into this unit, students should have a strong foundation in:** ✓ Basic arithmetic involving rational numbers ✓ Writing simple equations and expressions ✓ Solving 2 step equations and inequalities ✓ Creating 1 or 2 step equations from word problems ✓ Finding area of 2D shapes ✓ Finding volume of prisms, cylinders, & square based pyramids **This unit builds to the following future skills and concepts:** ✓ Solving 2 variable equations and inequalities ✓ Understanding and solving systems of equations/inequalities ✓ Writing and solving quadratic and exponential equations ✓ Finding Volume of more complex shapes ✓ Manipulating Equations with exponents and radicals

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N-Q.3 Choose a level of accuracy appropriate to limitations of measurement when reporting quantities

A-SSE.1 Interpret expressions that represent a quantity in terms of its context.

A-CED.1Create Equations and Inequalities with one variable

A.CED.4 Rearrange equations to highlight a quantity of interest

A-REI.1 Explain each step in solving a simple equation

A-REI.3 Solve Equations and inequalities with one variable including equations with coefficients represented by letters

A-REI.11 Explain why the x value in the point of intersection of two lines is the solution

G-GMD.1 Give an informal argument for geometric formulas

G-GMD.3 Use volume formulas to solve problems

G-GMD.7 Use coordinates to compute the perimeter of polygons

Additional Resources

Materials to support understanding and enrichment

- ✓ Teaching videos made by Wake County teachers
- ✓ WCPSS YouTube Channel – Math Playlist
- ✓ Linear Equations
- ✓ Solving Linear Equations
- ✓ Linear Inequalities
- ✓ Solving Equations with Variables on Both Sides
- ✓ Pythagorean Theorem
- ✓ Identities and No Solutions
- ✓ Distance Formula Video
- ✓ Distance Formula Practice
- ✓ Solving Equations with Variables on Both Sides
- ✓ Identity and No Solution Equations
- ✓ The Pythagorean Theorem
- ✓ Calculating Volume
- ✓ Pythagorean Theorem Proof
- ✓ Derive Distance Formula

"Learning Checks"

Questions Parents Can Use to Assess Understanding

- ✓ How is the Pythagorean Theorem used in the real-world?
- ✓ How are the origin, units, and scale used to find information from a graph?
- ✓ When is it appropriate to create and use an inequality versus an equation?
- ✓ How are perimeter, area, and volume applied in real world situations?
- ✓ How do I use the structure of algebraic expressions to solve problems?
- ✓ How do the properties of exponents compare to other mathematical properties that you have learned?
- ✓ Why is area based on square units? Why is volume based on cubic units?
- ✓ Why are volume formulas based on the concept of area of the base times the height of the figure?