

MONROE COUNTY COMMUNITY SCHOOL CORPORATION
CURRICULUM GUIDE

ALGEBRA 1-2

PROFICIENCY 1: THE LEARNER WILL USE THE LANGUAGE OF ALGEBRA

- 1.1 Evaluate algebraic expressions
- 1.2 Use formulas to solve problems
- 1.3 Translate word phrases and sentences into expressions and equations and vice versa
- 1.4 Recognize the appropriate use of the associative, commutative, and distributive properties
- 1.5 Use the associative, commutative, and distributive properties to simplify algebraic expressions

PROFICIENCY 2: THE LEARNER WILL PERFORM OPERATIONS WITH REAL NUMBERS

- 2.1 Simplify real number expressions
- 2.2 Determine the additive or multiplicative inverse of a number
- 2.3 Determine the absolute value of expressions
- 2.4 Use exponents with real numbers
- 2.5 Distinguish between rational and irrational numbers
- 2.6 Find approximations for square roots
- 2.7 Compare real number expressions
- 2.8 Write inequalities for number line graphs and vice versa

PROFICIENCY 3: THE LEARNER WILL SOLVE EQUATIONS AND INEQUALITIES WITH ONE VARIABLE

- 3.1 Solve an equation by using the addition property of equality and the idea of additive inverse
- 3.2 Solve an equation by using the multiplication property of equality and the idea of multiplicative inverse
- 3.3 Solve an equation graphically and by using more than one property of equality

- 3.4 Solve an equation which contains like terms
- 3.5 Solve an equation which has the variable in both members
- 3.6 Solve an equation in which the numerical coefficients and constant terms are fractions or decimals
- 3.7 Solve a formula for one of its variables or find the value of a variable when values of the other variables are given
- 3.8 Use problem solving skills to solve real world and “word” problems which involve a linear equation or formula
- 3.9 Solve an equation involving absolute value
- 3.10 Solve an equation containing a radical
- 3.11 Find the solution set for a linear inequality when replacement values are given for the variable
- 3.12 Solve a linear inequality by using properties of order
- 3.13 Use problem solving skills to solve real world or “word” problems which involve inequalities
- 3.14 Find the solution set of combined inequalities

PROFICIENCY 4: THE LEARNER WILL DEMONSTRATE AN UNDERSTANDING OF RELATIONSHIPS BETWEEN REPRESENTATIONS OF A FUNCTION

- 4.1 Given a rule or function that demonstrates a linear equation, generate ordered pairs and graph the equation
- 4.2 Translate between tables and graphs of functions
- 4.3 Given a linear inequality, determine whether a given value is in the solution set
- 4.4 Given a linear inequality in two variables, graph the solution set

PROFICIENCY 5: THE LEARNER WILL GRAPH AND USE LINEAR EQUATIONS AND INEQUALITIES

- 5.1 Determine if data are behaving in a linear fashion
- 5.2 Find the solution set of open sentences in two variables when given replacement sets for the variables
- 5.3 Graph a linear equation in two variables
- 5.4 Graph a line given its slope and y-intercept

- 5.5 Find the slope of a non-vertical line given the graph of the line or an equation of the line or two points on the line
- 5.6 Describe the slope in a real world linear relationship using real world terms
- 5.7 Write the slope-intercept form of an equation of a line. Find the slope and y-intercept of a line
- 5.8 Write the equation of a line given the slope and one point on the line, or two points on the line
- 5.9 Write the equation of a line which models a set of real data
- 5.10 Use the line which models real data to make predictions
- 5.11 Foreshadow inequalities by describing the location of an ordered pair in relation to a line
- 5.12 Graph a linear inequality in two variables

PROFICIENCY 6: THE LEARNER WILL GRAPH AND SOLVE SYSTEMS OF LINEAR EQUATIONS AND INEQUALITIES

- 6.1 Use a graph to find the solution of a pair of linear equations in two variables
- 6.2 Graph the system of linear inequalities in two variables and find the solution set
- 6.3 Use graphing technology to solve systems of linear equations
- 6.4 Use the substitution method to find the solution of a pair of linear equations in two variables
- 6.5 Use the addition or subtraction method to find the solution of a pair of linear equations in two variables
- 6.6 Use multiplication with the addition or subtraction method to solve systems of linear equations
- 6.7 Use systems of linear equations to solve real world and “word” problems

PROFICIENCY 7: THE LEARNER WILL PERFORM OPERATIONS WITH POLYNOMIALS

- 7.1 Add and subtract polynomials
- 7.2 Multiply monomials
- 7.3 Find an indicated power of a monomial
- 7.4 Multiply a polynomial by a monomial
- 7.5 Find the product of two binomials

- 7.6 Multiply two polynomials
- 7.7 Divide two polynomials
- 7.8 Divide a polynomial by a monomial
- 7.9 Find a common monomial factor in a polynomial
- 7.10 Factor the difference of two squares
- 7.11 Factor a simple quadratic trinomial

PROFICIENCY 8: THE LEARNER WILL WORK WITH RATIOS, PROPORTIONS, AND PERCENTS

- 8.1 Simplify ratios involving algebraic expressions
- 8.2 Solve proportions
- 8.3 Solve equations involving percents
- 8.4 Use ratios and proportions to solve real world and “word” problems
- 8.5 Solve real world and “word” problems involving percents

PROFICIENCY 9: THE LEARNER WILL EXPLORE, GRAPH, AND INTERPRET NONLINEAR EQUATIONS

- 9.1 Graph a quadratic equation
- 9.2 Use graphing technology to find the solution to a quadratic equation
- 9.3 Solve a quadratic equation when one member is in factored form and the other member is zero
- 9.4 Solve a simple second degree equation by factoring
- 9.5 Use graphing technology to relate the solutions of quadratic equations and the x-intercepts
- 9.6 Understand that the vertex provides the maximum or minimum value of a quadratic function
- 9.7 Solve a quadratic equation in which a perfect square equals a constant
- 9.8 Solve a quadratic equation by using the quadratic formula
- 9.9 Determine if a set of data represents an exponential function

9.10 Use formulas, calculators, and graphing technology to explore and solve problems involving exponentials