

Algebra 1 Online Learning Resources

**The following resources are from IXL/mathgames.com. Accounts are not required to access up to 10 free questions each day. Students can take a screenshot to verify progress if desired. Teacher should model activity before students begin. Student reflection after activity is recommended.

Unit ¹	Essential Standards
1	<u>Relationships Between Quantities and Reasoning with Equations</u> N.Q.2 (Define appropriate quantities for descriptive modeling) • <u>Unit prices with unit conversions</u> • <u>Checkpoint: Units and quantities</u> • <u>Solve linear equations: word problems</u> N.Q.3 (Choose a level of appropriate accuracy) • <u>Precision</u> • <u>Greatest possible error</u> • <u>Minimum and maximum area and volume</u> • <u>Percent Error</u> • <u>Checkpoint: Units and quantities</u> A.SSE.1a (Interpret parts of an expression, such as terms, factors and coefficients) • <u>Identify terms and coefficients</u> • <u>Interpret functions using everyday language</u> • <u>Checkpoint: Write and interpret equivalent expressions</u> • <u>Sort factors of variable expressions</u> • <u>Polynomial vocabulary</u> A.CED.1 (Create equations and inequalities in one variable and use them to solve problems) • <u>Write variable expressions</u>

¹ Unit numbers correspond to the Common Core State Standards Math appendix A scope and sequence.

- Write variable equations
- Solve one-step linear equations
- Solve two-step linear equations
- Solve advanced linear equations
- Solve one-step linear inequalities: addition and subtraction
- Solve one-step linear inequalities: multiplication and division
- Solve two-step linear inequalities
- Word problems: mixed review

A.CED.2 (Create and graph equations in two or more variables)

- Complete a table and graph a linear function
- Graph a line from an equation in slope-intercept form
- Complete a function table: quadratic functions
- Graph a quadratic function
- Characteristics of quadratic functions: graphs
- Write linear, quadratic and exponential functions

A.CED.3 (Represent constraints with equations or inequalities and interpret solutions in context)

- Solve linear equations: word problems
- Linear inequalities: word problems
- Checkpoint: Solve linear equations and inequalities
- Solve a system of equations by graphing: word problems
- Solve a system of equations by substitution: word problems
- Solve a system of equations using elimination: word problems
- Solve a system of equations using any method: word problems

A.CED.4 (Rearrange formulas to highlight a quantity of interest)

- Simplify variable expressions using properties
- Rearrange multi-variable equations

A.REI.1 (Explain steps when solving equations)

- Properties of equality
- Identify equivalent equations
- Solve equations: complete the solution

A.REI.3 (Solve linear equations and inequalities in one variable)

- Rearrange multi-variable equations
- Model and solve equations using algebra tiles
- Write and solve equations that represent diagrams
- Solve one-step linear equations
- Solve two-step linear equations
- Solve advanced linear equations
- Solve equations with variables on both sides
- Solve equations: complete the solution
- Solve linear equations: word problems
- Solve linear equations: mixed review
- Identify solutions to inequalities
- Solve one-step linear inequalities: addition and subtraction
- Solve one-step linear inequalities: multiplications and division
- Solve two-step linear inequalities
- Solve advanced linear inequalities
- Solve compound inequalities

Linear and Exponential Relationships

A.REI.6 (Solve systems of linear equations)

- Is (x,y) a solution to the system of equations?
- Solve a system of equations by graphing
- Solve a system of equations using substitution
- Solve a system of equations using elimination
- Solve a system of equations using any method

A.REI.10 (Understand the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane)

- Relate the graph on an equation to its solutions
- Find values using function graphs
- Complete a function table from a graph
- Complete a function table from an equation
- Complete a table and graph a linear function

F.IF.1 (Definition of function, domain, range, function notation)

- Domain and range of relations
- Identify independent and dependent variables
- Identify functions
- Identify functions: vertical line test
- Find values using function graphs
- Complete a function table from a graph
- Complete a function table from an equation
- Domain and range of exponential functions: graphs
- Domain and range of exponential functions: equations
- Domain and range of absolute value functions: graphs
- Domain and range of absolute value functions: equations
- Domain and range of square root functions: graphs
- Domain and range of square root functions: equations

F.IF.2 (Evaluate function notation and interpret notation in context)

- Complete a function table from a graph
- Evaluate linear expressions
- Evaluate nonlinear expressions
- Evaluate a function

F.IF.4 (Interpret intercepts, how graph is changing, relative maximums/minimums, symmetries, end behavior, and periodicity of graphs and tables, and sketch graphs)

- Interpret the graph of a function: word problems
- Identify proportional relationships
- Find the constant of variation
- Graph a proportional relationship
- Identify linear functions from graphs and equations
- Identify linear functions from tables
- Find the slope of a graph
- Slope-intercept form: find the slope and y-intercept
- Slope-intercept form: graph an equation
- Complete a table and graph a linear function
- Standard form: find x- and y- intercepts
- Standard form: graph an equation
- Point-slope form: graph an equation
- Slopes of parallel and perpendicular lines
- Match exponential functions and graphs
- Characteristics of quadratic functions: graphs
- Characteristics of quadratic functions: equations
- Graph quadratic functions in vertex form
- Identify linear, quadratic, and exponential functions from graphs
- Identify linear, quadratic, and exponential functions from tables
- Graph an absolute value function

F.IF.5 (Identify domain in context)

- Domain and range of exponential functions: graphs
- Domain and range of exponential functions: equations
- Domain and range of absolute value functions: graphs
- Domain and range of absolute value functions: equations
- Domain and range of square root functions: graphs
- Domain and range of square root functions: equations

F.IF.6 (Calculate and interpret average rate of change for a given interval)

- Rate of change: tables
- Rate of change: graphs
- Find the constant of variation
- Find the slope of a graph
- Find the slope from two points
- Slope-intercept form: find the slope and y-intercept
- Checkpoint: Average rate of change

F.LE.5 (Interpret parameters in a linear or exponential function in context)

- Solve linear equations: word problems
- Exponential growth and decay: word problems
- Compound interest: word problems
- Checkpoint: Compare linear and exponential functions

Descriptive Statistics

S.ID.1 (Create dot plots, histograms, and box plots)

- Interpret line plots
- Create line plots
- Interpret histograms
- Create histograms
- Create bar graphs, line graphs, and histograms
- Box plots

S.ID.2 (Compare center and spread of two or more different data sets)

- Mean, median, mode, and range
- Calculate quartiles and interquartile range
- Mean absolute deviation
- Variance and standard deviation

S.ID.3 (Interpret differences in shape, center, and spread in context, identify outliers)

- Box plots
- Identify an outlier
- Identify an outlier and describe the effect of removing it
- Checkpoint: Line plots, histograms, and box plots

S.ID.6 (Create scatter plot and describe how variables are related)

- Find the equation of a regression line
- Interpret regression lines
- Analyze a regression line of a data set
- Interpret a scatter plot
- Scatterplots: line of best fit

S.ID.7 (Interpret slope and intercept of a linear model in context)

- Interpret regression lines
- Analyze a regression line of a data set

F.IF.4 (Interpret intercepts, how graph is changing, relative maximums/minimums, symmetries, end behavior, and periodicity of graphs and tables, and sketch graphs)

- Interpret the graph of a function: word problems
- Identify proportional relationships
- Find the constant of variation
- Graph a proportional relationship
- Identify linear functions from graphs and equations
- Identify linear functions from tables
- Find the slope of a graph
- Slope-intercept form: find the slope and y-intercept
- Slope-intercept form: graph an equation
- Complete a table and graph a linear function
- Standard form: find x- and y- intercepts
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Expressions and Equations

A.CED.1 (Create equations and inequalities in one variable and use them to solve problems)

- Write variable expressions
- Write variable equations
- Solve one-step linear equations
- Solve two-step linear equations
- Solve advanced linear equations
- Solve one-step linear inequalities: addition and subtraction
- Solve one-step linear inequalities: multiplication and division
- Solve two-step linear inequalities
- Word problems: mixed review

A.CED.4 (Rearrange formulas to highlight a quantity of interest)

- Simplify variable expressions using properties
- Rearrange multi-variable equations

A.REI.4 (Solve quadratic equations in one variable)

- Complete the square
- Solve a quadratic equation using square roots
- Solve a quadratic equation using the zero product property
- Solve a quadratic equation by factoring
- Solve a quadratic equation by completing the square
- Solve a quadratic equation using the quadratic formula
- Using the discriminant

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

- Sort factors of variable expressions
- Polynomial vocabulary

	A.SSE.3 (Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression) • <u>Factor quadratics using algebra tiles</u> • <u>Factor quadratics with leading coefficient 1</u> • <u>Factor quadratics</u> • <u>Factoring Trinomials</u> (Virtual Algebra Tiles) • <u>Illuminations Activity</u> (Factor tab) A.SSE.3a (Factor a quadratic expression find the zeros of the function) • <u>Factor quadratics with learning coefficient 1</u> • <u>Factor quadratics with other leading coefficients</u> • <u>Factor quadratics: special cases</u> • <u>Solve a quadratic equation by factoring</u>
5	<u>Quadratic Functions and Modelling</u> A.REI.4b (Solve quadratic equations by inspection, taking square roots, completing the square, the quadratic formula and factoring, including complex solutions) • <u>Solve a quadratic equation using square roots</u> • <u>Solve a quadratic equation using the zero product property</u> • <u>Solve a quadratic equation by factoring</u> • <u>Complete the square</u> • <u>Solve a quadratic equation by completing the square</u> • <u>Solve a quadratic equation using the quadratic formula</u> • <u>Using the discriminant</u>

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- Graph a proportional relationship
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