

# Algebra 1



The following learning targets represent the major concepts studied and assessed in this course.

## Semester 1

### Unit A

#### *Real Numbers and Connections to Algebra*

- A1** Simplify expressions involving radicals and rational exponents.
- A2** Solve equations (including  $x^2$ ), recognize equivalent forms, and determine the number of solutions.
- A3** Solve inequalities, recognize equivalent forms, and graph their solutions.
- A4** Write a linear equation or inequality and use it to solve problems in context.
- A5** Solve literal equations for a specified variable.

### Unit B

#### *Linear Functions and Equations*

- B1** Calculate and interpret key features of linear functions from all forms: graph, table, and equation.
- B2** Graph a linear equation from all forms: slope-intercept and standard form, and make connections between the graph and equation. Including function notation.
- B3** Write and/or create linear functions, including in context, in all forms: graph, table, equation.
- B4** Identify, describe, and compare transformations / parameter changes.
- B5** Graphically represent the solution to a two-variable inequality, -including in context.

### Unit C

#### *Build Linear Functions and Models*

- C1** Find the line of best fit and the correlation coefficient,  $r$ , of a data set, interpret each and analyze causation vs. correlation.
- C2** Write arithmetic sequences in recursive and explicit form.
- C3** Identify domain and range and use it to create piecewise functions, including in context.

### Unit D

#### *Linear Systems*

- D1** Find the solution to a system of equations by graphing, table, or guess and check.
- D2** Find the solution to a system of equations algebraically with no real world context.
- D3** Find and interpret the solution to a system of equations in context.
- D4** Represent a system of linear inequalities graphically, including in context.

## Semester 2

### Unit E

#### *Exponential Functions and Equations*

- E1** Write exponential functions, including in context.
- E2** Create tables and graphs for exponential functions and make connections to their solution set.
- E3** Identify key features of exponential functions and interpret parameter changes.
- E4** Recognize linear and exponential functions from a table, graph, equation, in context, and compare their rates of change for a given interval.
- E5** Write geometric sequences in recursive and explicit form.

### Unit F

#### *Polynomial Operations and Models*

- F1** Multiply polynomials, including in context.
- F2** Add and subtract polynomials, including in context.

### Unit G

#### *Quadratic Functions and Equations*

- G1** Graph a quadratic function and identify its key features.
- G2** Divide a polynomial by a monomial and rewrite a polynomial in factored form, including in context.
- G3** Solve a quadratic equation using an appropriate method (factor, complete the square, square root method, quadratic formula, graph), including in context.

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The following learning targets represent the major concepts studied and assessed in this course.

***Unit H***  
***Functions and Models***

- H1** Rewrite a quadratic function in equivalent forms and identify its key features (vertex, standard, and intercept/factored forms).
- H2** Compare linear, exponential, and quadratic functions, compare their rates of change for a given interval.
- H3** Solve a system of equations involving linear and quadratic functions algebraically and/or graphically, including in context.

***Unit I***  
***Data Analysis***

- I1** Analyze and interpret univariate graphical data (dotplots, histograms & boxplots), including shape, outliers, center, spread (SOCS). Center includes mean, median and mode. Spread includes range, interquartile range, and standard deviation (students will calculate using technology).
- I2** Summarize bivariate categorical data in two-way frequency tables. This includes interpreting relative frequencies and looking for possible associations and trends in the data.