

Algebra 1—UNIT 2 Functions and Relations

Lessons 1-5, 1-6, 1-7, 4-7, Function Operations, Binary Operations

OAS: A1.A.3.1 Solve equations involving several variables for one variable in terms of the others.

A1.A.3.4 Evaluate linear, absolute value, rational, and radical expressions, including non-standard operations.

A1.A.4.1 Calculate and interpret slope and the x- and y-intercepts of a line using a graph, an equation, two points, or a set of data points to solve real world and mathematical problems.

A1.F.1.1 Distinguish between relations and functions.

A1.F.1.2 Identify the dependent and independent variables as well as the domain and range given a function, equation, or graph. Identify restrictions on the domain and range in real-world contexts.

A1.F.1.3 Write linear functions, using function notation, to model real-world and mathematical situations.

A1.F.1.4 Given a graph modeling a real-world situation, read and interpret the linear piecewise function (excluding step functions).

A1.F.2 Recognize functions and understand that families of functions are characterized by their rate of change.

A1.F.2.2 Recognize the graph of the functions $F(x) = x$ and $f(x) = |x|$ and predict the effects of transformations [$f(x + c)$ and $f(x) + c$, where x is a positive or negative constant] algebraically and graphically using various methods and tools that may include graphing calculators.

A1.F.3.1 Identify and generate equivalent representations of linear equations, graphs, tables, and real-world situations.

A1.F.3.2 Use function notation; evaluate a function, including nonlinear, at a given point in its domain algebraically and graphically. Interpret the results in terms of real-world and mathematical problems.

Advanced	In addition to Satisfactory applications, in depth inferences are made and applications that go beyond what was taught.
Satisfactory	<p>Students will be able to:</p> <ul style="list-style-type: none"> ○ Understand and effectively use vocabulary: function, vertical line test, non-linear function, relation, domain, range, independent variable, dependant variable, equation, solution, solution set, identity. ○ Represent relations and interpret graphs as relations. ○ Represent relations and functions as graphs, tables, expressions, word form, and real life examples. ○ Determine whether a relation is a function. ○ Identify and graph absolute value functions and relate them to real world situations. ○ Find function values, including absolute value functions and binary operator functions. ○ Add, Subtract and Multiply Functions <p>Student exhibits no major errors or omissions.</p>
Limited Knowledge	<ul style="list-style-type: none"> ○ Recognizes and defines vocabulary but cannot expand or elaborate. ○ Can use processes of solving equations in various forms, but make minor mistakes or needs help. ○ Can represent relations, but makes minor mistakes or needs help with interpretation. ○ Needs help determining whether a relation is a function, but can identify parts. ○ Can use some processes of finding function values, but may need help. <p>No major errors or omissions regarding the simpler details and processes, but the student exhibits major errors or omissions regarding the more complex ideas and processes.</p>
Unsatisfactory	With help, a partial understanding of the limited knowledge content, but not the satisfactory content.