

Grade 8 Smarter Balanced Assessment Item Specifications Fact Sheet

Claim 1 - Target E: Define, evaluate, and compare functions.

Content Domain: Functions

Claim 1 Priority Cluster

Standards Assessed in Target E:

8.F.1: Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.

8.F.2: Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).

8.F.3: Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.

Achievement Level Descriptors

Level 1	Students should be able to identify whether or not a relationship that is represented graphically, in a table, or algebraically is a function. They should be able to compare the properties of two linear functions represented in the same way (graphically or in a table).
Level 2	Students should be able to produce input and output pairs for a given function and identify whether an input/output pair satisfies a function. They should be able to compare properties of two functions represented in the same way (algebraic, graphic, tabular, or verbal). They should be able to classify functions as linear or nonlinear on the basis of their graph.
Level 3	Students should be able to classify functions as linear or nonlinear in different forms (e.g., graphical, algebraic, verbal description, and/or tabular) and should know linear equations of the form $y = mx + b$ are functions. They should also be able to define a function as a rule that assigns to each input exactly one output. They should be able to compare properties of two functions represented in different ways (algebraic, graphic, tabular, or verbal).
Level 4	Students should be able to give examples of functions that are not linear and be able to compare properties of two nonlinear functions represented in different ways (algebraic, graphic, tabular, or verbal).

Construct-Relevant Vocabulary

coordinate grid, function, linear, nonlinear, ordered pairs, rate of change, relation, slope, x–intercept, y–intercept

Allowable Stimulus Materials

equations of functions without function notation, graphs of functions, tables of functions, written descriptions of functions, sets of ordered pairs, function machines, linear and nonlinear graphs

Allowable Tools

Calculator