

## Smarter Balanced Mathematics Claims Distribution Overview

In the spring of 2015, Washington state students in grades 3 to 8 and 11 took the Smarter Balanced Comprehensive Assessments for mathematics. The results of these assessments were reported to the U.S. Department of Education for purposes of determining adequate yearly progress. A [cut-score for each assessment](#) indicating progress toward college and career readiness was determined by the Smarter Balanced Assessment Consortium.

This Claim Distribution document contains information on the [Mathematics K–12 Learning Standards](#), also referred to as “the standards,” that are eligible to be assessed on the mathematics exams in Grade 3. This is the same information found in the [Smarter Balanced Item Specification documents](#). This claim distribution, however, does not represent the emphasis of content on the Smarter Balanced summative assessment. [The summative assessment blueprint](#) provides information on the emphasis of content and claim on the assessment.

In this document, the mathematical content is listed by domain, cluster, and standard as written in the standards. Standards or clusters are considered priority assessment content unless labeled as supporting assessment content in the list below.

Smarter Balanced developed four “Mathematical Claims” that state what students should know and be able to do in the domain of mathematics, and on which the Smarter Balanced assessment system will provide data. This document shows how the standards will be assessed across these same claims. The letters associated with Claim match the target letters used in the Smarter Balanced Claim 1 Item Specification documents. All standards are eligible for assessment in Claims 2 to 4, but the standards and clusters addressed in the outline make up the majority of the items for that claim.

The outline on the next page shows how the Standards for Mathematical Practice support each of the four claims.

### Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.



## Smarter Balanced Assessment Claims

### Claim 1: Concepts & Procedures

- Students can explain and apply mathematical concepts and interpret and carry out mathematical procedures with precision and fluency.\*
- This claim addresses procedural skills and the conceptual understanding on which developing skills depend. It is important to assess student understanding of how concepts link together and why mathematical procedures work the way they do. This relates to the structural nature of mathematics.
- Practice Standard: 5, 6, 7, 8

### Claim 2: Problem Solving

- Students can solve a range of complex well-posed problems in pure and applied mathematics, making productive use of knowledge and problem-solving strategies.\*
- Assessment items and tasks focused on Claim 2 include problems in pure mathematics and problems set in context. Problems are presented as items and tasks that are well-posed (that is, problem formulation is not necessary) and for which a solution path is not immediately obvious. These problems require students to construct their own solution pathway rather than follow a provided one. Such problems will therefore be unstructured, and students will need to select appropriate conceptual and physical tools to use.
- Practice Standard: 1, 5, 7, 8

### Claim 3: Communicating Reasoning

- Students can clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of others.\*
- Claim 3 refers to a recurring theme in the content and practice standards—the ability to construct and present a clear, logical, convincing argument. For older students, this may take the form of a rigorous, deductive proof based on clearly stated axioms. For younger students, this will involve more informal justifications. Assessment tasks that address this claim will typically present a claim and ask students to provide, for example, a justification or counterexample.
- Practice Standard: 3, 6

### Claim 4: Modeling and Data Analysis

- Students can analyze complex, real-world scenarios and can construct and use mathematical models to interpret and solve problems.\*
- Modeling links classroom mathematics and statistics to everyday life, work and decision-making. Students use modeling and data analysis to choose and use appropriate mathematics and statistics to analyze and understand situations, to make predictions, find solutions and improve decision making based on results from the model. The standards feature modeling as both a mathematical practice at all grades and a content focus in high school.
- Practice Standard: 2, 4, 5

## Grade 8 Claim Distribution by Domain, Cluster, and Standard

### Domain: The Number System

- Cluster: 8.NS.A Know that there are numbers that are not rational, and approximate them by rational numbers. (*Supporting Cluster*)
  - Standard: 8.NS.A.1
    - Assessed in Claim 1 Target A
  - Standard: 8.NS.A.2
    - Assessed in Claim 1 Target A

### Domain: Expressions and Equations

- Cluster: 8.EE.A Work with radicals and integer exponents.
  - Standard: 8.EE.A.1
    - Assessed in Claim 1 Target B and Claim 3
  - Standard: 8.EE.A.2
    - Assessed in Claim 1 Target B
  - Standard: 8.EE.A.3
    - Assessed in Claim 1 Target B and Claim 4
  - Standard: 8.EE.A.4
    - Assessed in Claim 1 Target B and Claim 4
- Cluster: 8.EE.B Understand the connections between proportional relationships, lines, and linear equations.
  - Standard: 8.EE.B.5
    - Assessed in Claim 1 Target C and Claims 2, 3, and 4
  - Standard: 8.EE.B.6
    - Assessed in Claim 1 Target C and Claims 2, 3, and 4
- Cluster: 8.EE.C Analyze and solve linear equations and pairs of simultaneous linear equations.
  - Standard: 8.EE.C.7
    - Assessed in Claim 1 Target D, Claim 2, and Claim 4
  - Standard: 8.EE.C.7a
    - Assessed in Claim 1 Target D and Claims 2, 3, and 4
  - Standard: 8.EE.C.7b
    - Assessed in Claim 1 Target D and Claims 2, 3, and 4
  - Standard: 8.EE.C.8
    - Assessed in Claim 1 Target D, Claim 2, and Claim 4
  - Standard: 8.EE.C.8a
    - Assessed in Claim 1 Target D and Claims 2, 3, and 4
  - Standard: 8.EE.C.8b

- Assessed in Claim 1 Target D, Claim 2, and Claim 4
- Standard: 8.EE.C.8c
  - Assessed in Claim 1 Target D, Claim 2, and Claim 4

### Domain: Functions

- Cluster: 8.F.A Define, evaluate, and compare functions.
  - Standard: 8.F.A.1
    - Assessed in Claim 1 Target E, Claim 2, and Claim 3
  - Standard: 8.F.A.2
    - Assessed in Claim 1 Target E, Claim 2, and Claim 3
  - Standard: 8.F.A.3
    - Assessed in Claim 1 Target E, Claim 2, and Claim 3
- Cluster: 8.F.B Use functions to model relationships between quantities.
  - Standard: 8.F.B.4
    - Assessed in Claim 1 Target F, Claim 2, and Claim 4
  - Standard: 8.F.B.5

### Domain: Geometry

- Cluster: 8.G.A Understand congruence and similarity using physical models, transparencies, or geometry software.
  - Standard: 8.G.A.1
    - Assessed in Claim 1 Target G, Claim 2, and Claim 3
  - Standard: 8.G.A.1a
    - Assessed in Claim 1 Target G and Claim 2
  - Standard: 8.G.A.1b
    - Assessed in Claim 1 Target G and Claim 2
  - Standard: 8.G.A.1c
    - Assessed in Claim 1 Target G and Claim 2
  - Standard: 8.G.A.2
    - Assessed in Claim 1 Target G, Claim 2, and Claim 3
  - Standard: 8.G.A.3
    - Assessed in Claim 1 Target G and Claim 2
  - Standard: 8.G.A.4
    - Assessed in Claim 1 Target G, Claim 2, and Claim 3
  - Standard: 8.G.A.5
    - Assessed in Claim 1 Target G, Claim 2, and Claim 3
- Cluster: 8.G.B Understand and apply the Pythagorean Theorem.
  - Standard: 8.G.B.6
    - Assessed in Claim 1 Target H and Claims 2, 3, and 4
  - Standard: 8.G.B.7
    - Assessed in Claim 1 Target H, Claim 2, and Claim 4

- Standard: 8.G.B.8
  - Assessed in Claim 1 Target H and Claims 2, 3, and 4
- Cluster: 8.G.C Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres. (*Supporting Cluster*)
  - Standard: 8.G.C.9
    - Assessed in Claim 1 Target I, Claim 2, and Claim 4

### Domain: Statistics and Probability

- Cluster: 8.SP.A Investigate patterns of association in bivariate data. (*Supporting Cluster*)
  - Standard: 8.SP.A.1
    - Assessed in Claim1 Target J and Claim 4
  - Standard: 8.SP.A.2
    - Assessed in Claim 1 Target J and Claim 4
  - Standard: 8.SP.A.3
    - Assessed in Claim 1 Target J and Claim 4
  - Standard: 8.SP.A.4
    - Assessed in Claim 1 Target J and Claim 4

\*In Claims 2 to 4, clusters and standards addressed make up the majority of the items for that claim. All clusters and standards are eligible for assessment in Claims 2 to 4. [The summative assessment blueprint](#) provides information on the emphasis of content and claim on the assessment.



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