



Claim 1: Concepts and Procedures

The Smarter Balanced summative mathematics assessment and its relationship to instruction

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What is Claim 1?

- Addresses students' ability to explain and apply mathematical concepts
- Addresses students' ability to carry out mathematical procedures with precision and fluency
- About one-half of the computer-adaptive portion of the Smarter Balanced summative test assesses Claim 1 concepts and procedures





More Information

- More information about [Claim 1 on the summative assessment](#) is available online.





Claim 1 is based on the standards

Examples of standards that describe conceptual understanding include:

- 3.OA.B.6 - Understand division as an unknown-factor problem. *For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8.*
- 5.NBT.A.1 - Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and $1/10$ of what it represents in the place to its left.
- 8.F.A.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.





Claim 1 is based on the standards: Continued

Examples of standards that describe procedural fluency include:

- 4.NBT.B.4 - Fluently add and subtract multi-digit whole numbers using the standard algorithm.
- 6.EE.A.1 - Write and evaluate numerical expressions involving whole-number exponents.
- A-REI.B.3 - Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.





More information on Claim 1

- Uses the focus and coherence structures found in the standards
- [Claim 1 information](#) is available online.
- Look in Test Blueprints and Guidelines and Resources sections.





Claim 1 is based on the Mathematical Practices

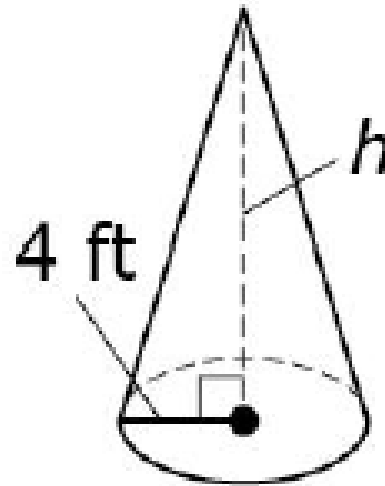
- Mathematical Practices 5 through 8 offer foundational support for Claim 1
 - 5. Use appropriate tools strategically
 - 6. Attend to precision
 - 7. Look for and make use of structure
 - 8. Look for and express regularity in repeated reasoning





Grade 8 – Using tools strategically

Example Stem 2: A cone with radius 4 feet is shown. Its approximate volume is 165 cubic feet.



Enter the height of the cone, in feet. Round your answer to the nearest hundredth.





Grade 3 – Attending to precision

Example Stem: Decide whether each equation is true or false
Click True or False for each equation.

	True	False
$3 \times 6 = 18 \div 2$		
$4 \times 9 = 36 \div 4$		
$2 \times 5 = 20 \div 2$		





High school – Making use of structure

Example Stem:

Part A: Three equivalent equations for $f(x)$ are shown. Select the form that reveals the zeros of $f(x)$ without changing the form of the equation.

Part B: Select all values of x for which $f(x) = 0$.

Part A:

$$f(x) = -2x^2 + 24x - 54$$
$$f(x) = -2(x - 3)(x - 9)$$
$$f(x) = -2(x - 6)^2 + 18$$

Part B:

-54	-18	-9	-6	-3	
0	3	6	9	18	54





Grade 6 – Using repeated reasoning

Example Stem: The ratio of x to y is $\frac{1}{4}$. All values of x and y are whole numbers less than 100.

x	y

Fill in the boxes with numbers to form a table with the given ratio.





Additional information on Claim 1 and the Mathematical Practices

- The [Smarter Balanced Content Specifications](#) are available online.





Claim 1 supports a progression of learning

- There is an internal structure of coherence in the standards
 - Example: key ideas of operations are consistent across the grades
- Fluency is only assessed after conceptual understanding has been developed in previous grades





Progressions of learning

- The [progressions of learning](#) are available online.





How Claim 1 informs assessment

- Every cluster in Grades 3–8 and several clusters in high school have Claim 1 documents
- Evidence statements indicate specific ways a cluster is assessed
- The “Evidence Required” statements were developed by educational experts from across the nation





Assessing conceptual understanding: Example 1

Example Stem 3: Which expression is equal to 5×14 ?

- A. $5 \times (10 + 4)$
- B. $(5 \times 10) \times 4$
- C. $(5 \times 1) + (2 \times 7)$
- D. $(5 \times 4) \times (5 \times 10)$





Assessing conceptual understanding: Example 2

Example Stem: A game has green and blue pieces. The ratio of green game pieces to total pieces is 5:12.

Select **all** the statements that are correct about the game pieces.

- A. The ratio of green pieces to blue pieces is 7:5.
- B. The ratio of total pieces to blue pieces is 12:7.
- C. There must be 7 more blue pieces than green pieces.
- D. The ratio of total pieces to green pieces is 12:5.





Assessing conceptual understanding: Example 3

Example Stem: Select the appropriate box to identify the value of each expression as being rational or irrational.

	Rational	Irrational
$5\sqrt{7} + \frac{1}{7}$		
$12.4 \cdot (-11)$		
$\sqrt{4} + 17$		
$(-10\sqrt{10}) \cdot 10\sqrt{10}$		





Assessing procedural fluency: Example 1

Example Stem 1: Enter the value of $(5 \times 12) + (27 \div 9)$.

Example Stem 2: Enter the exact value of $(6 \times \frac{2}{3}) + (\frac{2}{8} + \frac{3}{8})$.

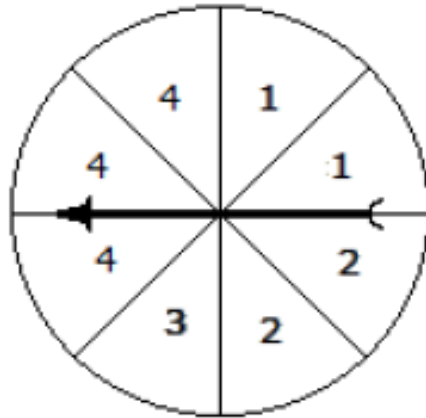
Example Stem 3: Enter the exact value of $(2 \div 0.1) - (0.3 \times 0.4)$.





Assessing procedural fluency: Example 2

Example Stem: This spinner is divided into 8 equal-sized sections.



Enter the probability of the arrow landing on a section labeled 2 on the first spin.

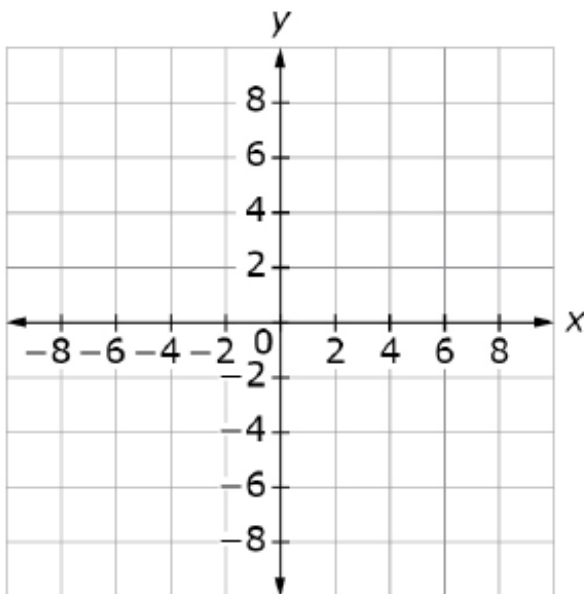




Assessing procedural fluency

Example Stem 3: Given the function $y = \frac{1}{2}|2x - 1| + 2$,

- Use the Add Arrow tool to create a graph that represents the function.
- Place a point on the coordinate grid to show the y -intercept of the function.





How Claim 1 informs instruction

- Claim 1 documents help teachers develop understanding of the concepts and skills students should learn
- Classroom instruction and assessment should not be limited by the Claim 1 documents
- Claim 1 skills should be part of a rich educational experience
- Some high school standards are better fitted to Claims 2, 3, and 4
- The mathematical practices should guide classroom instruction
- The progressions of learning are key to making connections





Further help

- Specific Claim 2 through 4 videos to get a more complete picture of each claim and the skills students should develop through focused instruction

