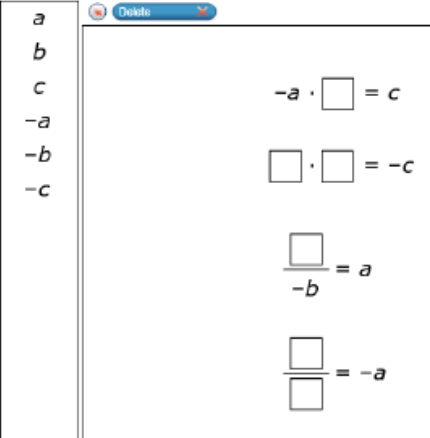


Claim 3: Communicating Reasoning	
Items and task assessing Claim 3 may involve application of more than one standard. The focus is on communicating reasoning rather than demonstrating mathematical concepts or simple applications of mathematical procedures.	
Gr 6-8 and 11: 21-22% of Q's (25% of which will come from PT)	
Verbs associated with Claim 3:	understand, explain, justify, prove, derive, assess, illustrate, analyze
Assessment Targets	Expectations
Target A: Test propositions or conjectures with specific examples. (DOK 2)	<p>Task Expectations:</p> <ul style="list-style-type: none"> The student is asked to give an example that refutes a proposition or conjecture; or The student is asked to give an example that supports a proposition or conjecture. <p>[Note: Use appropriate mathematical language in asking students for a single example. While a single example can be used to refute a conjecture, it cannot be used to prove one is always true.]</p> <p>Stems:</p> <ul style="list-style-type: none"> Provide 3 examples to show why/how... Give an example to show Tom's claim is incorrect. <p>Example: The radius of sphere Y is twice the radius of sphere X. A student claims that the volume of sphere Y must be exactly twice the volume of sphere X. Part A: Drag numbers into the boxes to create one example to evaluate the student's claim. Part B: Decide whether the student's claim is True, False, or whether it Cannot be determined.</p>
Target B: Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures. (DOK 3, 4)	<p>Task Expectations: The student is presented with a mathematical phenomenon and a conjecture. Student is asked to identify or construct reasoning that justifies or refutes a conjecture.</p> <p>Stems:</p> <ul style="list-style-type: none"> Describe a sequence of three transformations that ... Support Tina's thinking by describing... Prove... Complete the proof by providing reasons that justify each statement. Formulate and justify a conjecture. Provide missing information by researching or providing a reasoned estimate. Determine under what conditions an argument is true, to determine under what conditions an argument is not true, or both. Present students with one or more flawed arguments and ask students to choose which (if any) is correct, explain the flaws in reasoning, and/or correct flawed reasoning. Determine whether a proposition or conjecture always applies, sometimes applies, or never applies and provide justification to support their conclusions.

<p>Target C: State logical assumptions being used. (DOK 2, 3)</p>	<p>Task Expectations: The student is asked to connect a logical basis to its resulting conjecture. The student is presented with a mathematical or real-world scenario where an assumption is made in order to find the solution.</p> <p>Example: In the following equation, a, b, and c are nonzero rational numbers. $a \cdot b = c$ Given this equation, drag one value into each box to complete four true equations.</p> 
<p>Target D: Use the technique of breaking an argument into cases. (DOK 2, 3)</p>	<p>Task Expectations: The student is given different cases to consider and the student uses or shows reasoning to support the cases.</p> <p>Stem: Show this claim is true.</p>
<p>Target E: Distinguish correct logic or reasoning from that which is flawed and—if there is a flaw in the argument—explain what it is. (DOK 2, 3, 4)</p>	<p>Task Expectations:</p> <ul style="list-style-type: none"> • The student is presented with valid or invalid reasoning. If the reasoning is flawed, the student will explain or correct the flaw. • The student is asked to select the condition(s) for which an argument does or does not always apply. • Two or more approaches or chains of reasoning are given and the student is asked to identify the correct method and justification OR identify the incorrect method/reasoning and the justification. <p>Stems: Decide if Sherry is correct. Select all steps that show an error... Select the part of the problem Kyle should read to fix his mistake.</p>
<p>Target F: Base arguments on concrete referents such as objects, drawings, diagrams, and actions. (DOK 2, 3)</p>	<p>Task Expectations: The student uses concrete referents to help justify or refute an argument.</p> <p>Stem: Which statement correctly classifies Ashley's claims [as true or false] and provides appropriate reasoning?</p>

Target G: At later grades, determine conditions under which an argument does and does not apply. (For example, area increases with perimeter for squares, but not for all plane figures.) (DOK 3, 4)

Task Expectations:

- The student is asked to construct the conditions for which an argument does and does not apply OR
- The student must determine whether a proposition or conjecture is True for all, True for some, or Not true for any and/or provide justification to support their conclusions.

Example:

1) An inequality is shown below.

$$\sqrt[3]{m} \leq m$$

Part A:

Determine the positive values of m for which the inequality is true.

Part B:

Determine the positive values of m for which the inequality is false.

2) Determine whether each statement is true for all cases, true for some cases, or not true for any case.

Statement	True for all	True for some	Not true for any
Two vertical angles form a linear pair.			
If two angles are supplementary and congruent, they are right angles.			
The sum of two adjacent angles is 90°.			
If the measure of an angle is 35°, then the measure of its complement is 55°.			
The measure of an exterior angle of a triangle is greater than every interior angle of the triangle.			

Grade 6	Grade 7	Grade 8
6.RP.A	7.RP.2	8.EE.1
6.RP.3	7.NS.A	8.EE.5
6.NS.A	7.NS.1	8.EE.6
6.NS.1	7.NS.2	8.EE.7a
6.NS.C	7.EE.1	8.EE.7b
6.NS.5	7.EE.2	8.EE.8a
6.NS.6		8.F.1
6.NS.7		8.F.2
6.EE.A		8.F.3
6.EE.3		8.G.1
6.EE.4		8.G.2
6.EE.B		8.G.4
6.EE.6		8.G.5
6.EE.9		8.G.6
		8.G.8

High School		
N-RN.A	A-REI.C	G-CO.A
N-RN.B	A-REI.10	G-CO.B
N-RN.3	A-REI.11	G-CO.C
A-SSE.2	F-IF.1	G-CO.9
A-APR.1	F-IF.5	G-CO.10
A-APR.B	F-IF.9	G-CO.11
A-APR.4	F-BF.3	G.SRT.A
A-APR.6	F-BF.4a	G.SRT.B
A-REI.A	F-TF.1	
A-REI.1	F-TF.2	
A-REI.2	F-TF.8	