

	Blueprint Table Mathematics	Grades 3 5				
Claim/Score Reporting Category	Content Category <sup>1</sup>	Stimuli		lte	ms	Total Items by Claim <sup>2</sup>
Stating State (Toporation State Satisfaction)	- Contonic Gategory	CAT	PT	CAT <sup>3</sup>	PT <sup>4</sup>	rotal items by blaim.
Concepts and Procedures	Priority Cluster	0	0	13-15	0	17-20
1. Concepts und Procedures	Supporting Cluster	0	Ŭ	4-5	,	17 20
2. Problem Solving	Problem Solving	0		6	2-4	8-10
4. Modeling and Data Analysis <sup>5</sup>	Modeling and Data Analysis	0	1			0.10
3. Communicating Reasoning	Communicating Reasoning	0		8	0-2	8-10

<sup>&</sup>lt;sup>1</sup> For more information on content categories, see the Content Specifications document at <a href="http://www.smarterbalanced.org/smarter-balanced-assessments/">http://www.smarterbalanced.org/smarter-balanced-assessments/</a>.

<sup>&</sup>lt;sup>2</sup> While the range for the total items by Claim for Problem Solving/Modeling and Data Analysis and Communicating Reasoning indicates 8-10 items in each reporting category, the total number of items across these two reporting categories for any individual test event is 18-20.

<sup>&</sup>lt;sup>3</sup> All CAT items are designed to be machine-scored.

<sup>&</sup>lt;sup>4</sup> Each PT contains 4-6 total items. Up to four PT items may require hand-scoring.

<sup>&</sup>lt;sup>5</sup> Claim 2 (Problem Solving) and Claim 4 (Modeling and Data Analysis) have been combined because of content similarity and to provide flexibility for item development. There are still four claims, but only three claim scores will be reported with the overall math score.



	Blueprint Table Mathematics	Grades 6 8				
Claim/Score Reporting Category	Content Category <sup>1</sup>	Stimuli		Items		Total Items by Claim <sup>2</sup>
Granny Good of Reporting Gategory	osmont outogory	CAT	PT	CAT <sup>3</sup>	PT <sup>4</sup>	
	Priority Cluster	0	12-15			
Concepts and Procedures	Supporting Cluster	0	0	4-5	0	16-20
2. Problem Solving	Problem Solving	0		6 2-4		8-10
4. Modeling and Data Analysis <sup>5</sup>	Modeling and Data Analysis	0	1	3	1	3 10
3. Communicating Reasoning	Communicating Reasoning	0		8	0-2	8-10

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<sup>&</sup>lt;sup>2</sup> While the range for the total items by Claim for Problem Solving/Modeling and Data Analysis and Communicating Reasoning indicates 8-10 items in each reporting category, the total number of items across these two reporting categories for any individual test event is 18-20.

<sup>&</sup>lt;sup>3</sup> All CAT items are designed to be machine-scored.

<sup>&</sup>lt;sup>4</sup> Each PT contains 4-6 total items. Up to four PT items may require hand-scoring.

<sup>&</sup>lt;sup>5</sup> Claim 2 (Problem Solving) and Claim 4 (Modeling and Data Analysis) have been combined because of content similarity and to provide flexibility for item development. There are still four claims, but only three claim scores will be reported with the overall math score.



	Blueprint Table Mathemati	cs Grade 11				
Claim/Score Reporting Category	Content Category <sup>1</sup>	Stin	Stimuli		ns	Total Items by Claim <sup>2</sup>
, , , , , , , , , , , , , , , , , , , ,		CAT	PT	CAT <sup>3</sup>	PT <sup>4</sup>	
Concepts and Procedures	Priority Cluster	0	0	14-16	0	19-22
1. Concepts and Procedures	Supporting Cluster	0		5-6		15-22
2. Problem Solving	Problem Solving	0			2-4	8-10
4. Modeling and Data Analysis <sup>5</sup>	Modeling and Data Analysis	0	1	6	2-4	8-10
3. Communicating Reasoning	Communicating Reasoning	0		8	0-2	8-10

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<sup>&</sup>lt;sup>2</sup> While the range for the total items by Claim for Problem Solving/Modeling and Data Analysis and Communicating Reasoning indicates 8-10 items in each reporting category, the total number of items across these two reporting categories for any individual test event is 18-20.

<sup>&</sup>lt;sup>3</sup> All CAT items are designed to be machine-scored.

<sup>&</sup>lt;sup>4</sup> Each PT contains 4-6 total items. Up to six PT items may require hand-scoring.

<sup>&</sup>lt;sup>5</sup> Claim 2 (Problem Solving) and Claim 4 (Modeling and Data Analysis) have been combined, because of content similarity and to provide flexibility for item development. There are still four claims, but only three claim scores will be reported with the overall math score.



		Target Sampling Mathematics Grade 3				
Claim	Content	Assessment Targets	DOK	Items		Total
Oldilli	Category	Assessment rangets		CAT	PT	Items
		B. Understand properties of multiplication and the relationship between multiplication and division.	1			
		C. Multiply and divide within 100.	1			
	I. Geometric measurement: understand concepts of area and relate area to multiplication and to addition.  Priority Cluster  G. Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.  D. Solve problems involving the four operations, and identify and explain patterns in arithmetic.	1, 2	5-6			
			1, 2		0	
1. Concepts and			2	5-6		17-20
Procedures		F. Develop understanding of fractions as numbers.	1, 2			
		A. Represent and solve problems involving multiplication and division.	1, 2	2-3		
		E. Use place value understanding and properties of operations to perform multi-digit arithmetic.	1			
	Supporting Cluster	J. Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.	te of plane figures and 1	3-4		
		K. Reason with shapes and their attributes.	1, 2			
		H. Represent and interpret data.	2, 3	1		

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  - For combined Claims 2 and 4, each student will receive at least 2 CAT items at DOK 3 or higher.
  - For Claim 3, each student will receive at least 2 CAT items at DOK 3 or higher.



		Target Sampling Mathematics Grade 3					
Claim	Content	Assessment Targets	DOK	lter	ns	Total	
Glaim	Category	Assessment raigets	DON	CAT	PT	Items	
	Problem	A. Apply mathematics to solve well-posed problems arising in everyday life, society, and the workplace.	2, 3	2			
	Solving (drawn across content domains)	<ul> <li>B. Select and use appropriate tools strategically.</li> <li>C. Interpret results in the context of a situation.</li> <li>D. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).</li> </ul>	1, 2, 3	1 1-2			
2. Problem Solving	Modeling and Data Analysis (drawn across content domains)	A. Apply mathematics to solve problems arising in everyday life, society, and the workplace.      D. Interpret results in the context of a situation.	2, 3	1		8-10	
4. Modeling and Data Analysis		Analysis  Modeling and Data Analysis (drawn across content  Modeling and Data Analysis interpretations made, and E. Analyze the adequacy of a mathematical model of a	<ul> <li>B. Construct, autonomously, chains of reasoning to justify mathematical models used, interpretations made, and solutions proposed for a complex problem.</li> <li>E. Analyze the adequacy of and make improvements to an existing model or develop a mathematical model of a real phenomenon.</li> </ul>	2, 3, 4	1	1–3	
		<ul><li>C. State logical assumptions being used.</li><li>F. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).</li></ul>	1, 2, 3	1			
		G. Identify, analyze, and synthesize relevant external resources to pose or solve problems.	3, 4	0			
		<ul><li>A. Test propositions or conjectures with specific examples.</li><li>D. Use the technique of breaking an argument into cases.</li></ul>	2, 3	3			
3. Communicating Reasoning	Communicating Reasoning (drawn across content	<ul> <li>B. Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures.</li> <li>E. Distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in the argument—explain what it is.</li> </ul>	2, 3, 4	2, 3, 4 3 0-2		8-10	
	domains)	C. State logical assumptions being used.     Base arguments on concrete referents such as objects, drawings, diagrams, and actions.	2, 3	2			

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  - For Claim 3, each student will receive at least 2 CAT items at DOK 3 or higher.



		Target Sampling Mathematics Grade 4				
Claim	Content	Assessment Targets	DOK	Items		Total 
	Category			CAT	PT	Items
		A. Use the four operations with whole numbers to solve problems.	1, 2	8-9		
		E. Use place value understanding and properties of operations to perform multi-digit arithmetic.	1, 2			
		F. Extend understanding of fraction equivalence and ordering.	1, 2			
	Priority Cluster	G. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.	1, 2	2-3	0	
			D. Generalize place value understanding for multi-digit whole numbers. 1, 2	1-2		
1. Concepts and Procedures		H. Understand decimal notation for fractions, and compare decimal fractions.	1, 2	1		17-20
Procedures		Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.	nts from a larger 1, 2	2-3		
		K. Geometric measurement: understand concepts of angle and measure angles.	1, 2			
	Supporting	B. Gain familiarity with factors and multiples.	1, 2			
	Cluster	C. Generate and analyze patterns.	2, 3	1		
		J. Represent and interpret data.	1, 2			
		L. Draw and identify lines and angles, and classify shapes by properties of their lines and angles.	1, 2	1		

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  - For Claim 3, each student will receive at least 2 CAT items at DOK 3 or higher.



		Target Sampling Mathematics Grade 4				
Claim	Content Assessment Targets	Accessment Tarriets	DOK	Items		Total
Claim	Category	Assessment rangets	DON	CAT	PT	Items
	Problem	A. Apply mathematics to solve well-posed problems arising in everyday life, society, and the workplace.	2, 3	2		
	Solving (drawn across content domains)	<ul> <li>B. Select and use appropriate tools strategically.</li> <li>C. Interpret results in the context of a situation.</li> <li>D. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).</li> </ul>	1, 2, 3	2, 3 1	1–2	
2. Problem Solving	Modeling and Data Analysis (drawn across content	A. Apply mathematics to solve problems arising in everyday life, society, and the workplace.      D. Interpret results in the context of a situation.	2, 3	1		8-10
4. Modeling and Data Analysis		B. Construct, autonomously, chains of reasoning to justify mathematical models used, interpretations made, and solutions proposed for a complex problem.      Analyze the adequacy of and make improvements to an existing model or develop a mathematical model of a real phenomenon.	2, 3, 4	2, 3, 4 1	1–3	
	domains)	<ul><li>C. State logical assumptions being used.</li><li>F. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).</li></ul>	1, 2, 3	1		
		G. Identify, analyze, and synthesize relevant external resources to pose or solve problems.	3, 4	0		
		<ul><li>A. Test propositions or conjectures with specific examples.</li><li>D. Use the technique of breaking an argument into cases.</li></ul>	2, 3	3		
3. Communicating Reasoning	Reasoning	<ul> <li>B. Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures.</li> <li>E. Distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in the argument—explain what it is.</li> </ul>	2, 3, 4	3, 4 3 0-2		8-10
	domains)	C. State logical assumptions being used.     F. Base arguments on concrete referents such as objects, drawings, diagrams, and actions.	2, 3	2		

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		Target Sampling Mathematics Grade 5				
Claim	Content	Assessment Targets	DOK	Iter	Items	
	Category			CAT	PT	Items
		E. Use equivalent fractions as a strategy to add and subtract fractions.	1, 2			
	Priority Cluster	Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.	1, 2	5-6	-	
		F. Apply and extend previous understandings of multiplication and division to multiply and divide fractions.	1, 2	4-5		
		D. Perform operations with multi-digit whole numbers and with decimals to hundredths.	1, 2	3-4		
1. Concepts and		C. Understand the place value system.	1, 2	3-4	0	17-20
Procedures		J. Graph points on the coordinate plane to solve real-world and mathematical problems.	1	2-3		
		K. Classify two-dimensional figures into categories based on their properties.	2	2-3		
	Supporting A. Write and interp	A. Write and interpret numerical expressions.	1			
	Cluster	B. Analyze patterns and relationships.	2	2		
		G. Convert like measurement units within a given measurement system.	1			
		H. Represent and interpret data.	1, 2			

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		Target Sampling Mathematics Grade 5				
Claim	Content	Assessment Targets	DOK	Items		Total
Olaim	Category	Assessment raigets	DON	CAT	PT	Items
	Problem	A. Apply mathematics to solve well-posed problems arising in everyday life, society, and the workplace.	2, 3	2		
	Solving (drawn across content domains)	<ul> <li>B. Select and use appropriate tools strategically.</li> <li>C. Interpret results in the context of a situation.</li> <li>D. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).</li> </ul>	1, 2, 3	1	1–2	
2. Problem Solving	Modeling and Data Analysis (drawn across content	<ul><li>A. Apply mathematics to solve problems arising in everyday life, society, and the workplace.</li><li>D. Interpret results in the context of a situation.</li></ul>	2, 3	1		8-10
4. Modeling and Data Analysis		<ul> <li>B. Construct, autonomously, chains of reasoning to justify mathematical models used, interpretations made, and solutions proposed for a complex problem.</li> <li>E. Analyze the adequacy of and make improvements to an existing model or develop a mathematical model of a real phenomenon.</li> </ul>	2, 3, 4	1	1–3	
	domains)	<ul><li>C. State logical assumptions being used.</li><li>F. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).</li></ul>	1, 2, 3	1		
		G. Identify, analyze, and synthesize relevant external resources to pose or solve problems.	3, 4	0		
		<ul><li>A. Test propositions or conjectures with specific examples.</li><li>D. Use the technique of breaking an argument into cases.</li></ul>	2, 3	3		
3. Communicating Reasoning	Reasoning	<ul> <li>B. Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures.</li> <li>E. Distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in the argument—explain what it is.</li> </ul>	2, 3, 4	3	0-2	8-10
	domains)	<ul><li>C. State logical assumptions being used.</li><li>F. Base arguments on concrete referents such as objects, drawings, diagrams, and actions.</li></ul>	2, 3	2		

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		Target Sampling Mathematics Grade 6				
Claim	Content Category	Assessment Targets		Items		Total
				CAT	PT	Items
		E. Apply and extend previous understandings of arithmetic to algebraic expressions.	1 5	5-6		
		F. Reason about and solve one-variable equations and inequalities.	1, 2	3-4	0	
	Priority Cluster G	A. Understand ratio concepts and use ratio reasoning to solve problems.	1, 2			
		G. Represent and analyze quantitative relationships between dependent and independent variables.	2			
1. Concepts and Procedures		B. Apply and extend previous understandings of multiplication and division to divide fractions by fractions.	1, 2			16-19
Frocedures		D. Apply and extend previous understandings of numbers to the system of rational numbers.	1, 2	2		
		C. Compute fluently with multi-digit numbers and find common factors and multiples.	1, 2			
	Supporting	H. Solve real-world and mathematical problems involving area, surface area, and volume.	1, 2	4-5		
	Cluster	I. Develop understanding of statistical variability.	2	4-5		
		J. Summarize and describe distributions.	1, 2			

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		Target Sampling Mathematics Grade 6				
Claim	Content	Assessment Targets	DOK	Items		Total
Claim	Category	Academic Tangeto		CAT	PT	Items
	Problem	A. Apply mathematics to solve well-posed problems arising in everyday life, society, and the workplace.	2, 3	2		
	Solving (drawn across content domains)	<ul> <li>B. Select and use appropriate tools strategically.</li> <li>C. Interpret results in the context of a situation.</li> <li>D. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).</li> </ul>	1, 2, 3	1	1 1-2	
Problem Solving     Modeling and	Modeling and Data Analysis (drawn across content	<ul><li>A. Apply mathematics to solve problems arising in everyday life, society, and the workplace.</li><li>D. Interpret results in the context of a situation.</li></ul>	2, 3	1		8-10
Data Analysis		<ul> <li>B. Construct, autonomously, chains of reasoning to justify mathematical models used, interpretations made, and solutions proposed for a complex problem.</li> <li>E. Analyze the adequacy of and make improvements to an existing model or develop a mathematical model of a real phenomenon.</li> </ul>	2, 3, 4	1	1–3	
	domains)	<ul><li>C. State logical assumptions being used.</li><li>F. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).</li></ul>	1, 2, 3	1		
		G. Identify, analyze, and synthesize relevant external resources to pose or solve problems.	3, 4	0		
		<ul><li>A. Test propositions or conjectures with specific examples.</li><li>D. Use the technique of breaking an argument into cases.</li></ul>	2, 3	3		
3. Communicating Reasoning	Communicating Reasoning (drawn across content	<ul> <li>B. Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures.</li> <li>E. Distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in the argument—explain what it is.</li> </ul>	2, 3, 4	3	0-2	8-10
	domains)	<ul> <li>C. State logical assumptions being used.</li> <li>F. Base arguments on concrete referents such as objects, drawings, diagrams, and actions.</li> <li>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.)</li> </ul>	2, 3	2		

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		Target Sampling Mathematics Grade 7				
	Content Category	*****		Items		Total Items
				CAT	PT	
		A. Analyze proportional relationships and use them to solve real-world and mathematical problems.	2	8-9		
	Priority Cluster	D. Solve real-life and mathematical problems using numerical and algebraic expressions and equations.	1, 2	0-9		
		B. Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.	1, 2	5-6		
1. Concepts and		C. Use properties of operations to generate equivalent expressions.	1, 2			4-00
Procedures		E. Draw, construct, and describe geometrical figures and describe the relationship between them.	1, 2	2-3	0	17-20
	Supporting	F. Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.	1, 2			
	Cluster	G. Use random sampling to draw inferences about a population.	1, 2			
		H. Draw informal comparative inferences about two populations.	2	1-2		
		Investigate chance processes and develop, use, and evaluate probability models.	1, 2			

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Target Sampling Mathematics Grade 7							
Claim	Content Category	Assessment Targets	DOK	Items		Total	
				CAT	PT	Items	
Problem Solving     Modeling and     Data Analysis	Problem Solving (drawn across content	A. Apply mathematics to solve well-posed problems arising in everyday life, society, and the workplace.	2, 3	2	1–2	8-10	
		<ul> <li>B. Select and use appropriate tools strategically.</li> <li>C. Interpret results in the context of a situation.</li> <li>D. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).</li> </ul>	1, 2, 3	1			
		<ul><li>A. Apply mathematics to solve problems arising in everyday life, society, and the workplace.</li><li>D. Interpret results in the context of a situation.</li></ul>	2, 3	1	1-3		
	Modeling and Data Analysis (drawn across content domains)	B. Construct, autonomously, chains of reasoning to justify mathematical models used, interpretations made, and solutions proposed for a complex problem.      Analyze the adequacy of and make improvements to an existing model or develop a mathematical model of a real phenomenon.	2, 3, 4	1			
		<ul><li>C. State logical assumptions being used.</li><li>F. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).</li></ul>	1, 2, 3	1			
		G. Identify, analyze, and synthesize relevant external resources to pose or solve problems.	3, 4	0			
	ing Communicating Reasoning (drawn across content domains)	<ul><li>A. Test propositions or conjectures with specific examples.</li><li>D. Use the technique of breaking an argument into cases.</li></ul>	2, 3	3	0-2	8-10	
3. Communicating Reasoning		<ul> <li>B. Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures.</li> <li>E. Distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in the argument—explain what it is.</li> </ul>	2, 3, 4	3			
		<ul> <li>C. State logical assumptions being used.</li> <li>F. Base arguments on concrete referents such as objects, drawings, diagrams, and actions.</li> <li>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.)</li> </ul>	2, 3	2			

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Target Sampling Mathematics Grade 8							
Claim	Content Category	Assessment Targets	DOK	Items		Total	
				CAT	PT	Items	
1. Concepts and Procedures		C. Understand the connections between proportional relationships, lines, and linear equations.	1, 2	5-6			
		D. Analyze and solve linear equations and pairs of simultaneous linear equations.	1, 2				
		B. Work with radicals and integer exponents. 1, 2					
	Priority Cluster	E. Define, evaluate, and compare functions.	1, 2	5-6	0		
		G. Understand congruence and similarity using physical models, transparencies, or geometry software.	1, 2			4-00	
		F. Use functions to model relationships between quantities.	1, 2			17-20	
		H. Understand and apply the Pythagorean Theorem.	1, 2	2-3			
		A. Know that there are numbers that are not rational, and approximate them by rational numbers.	1, 2	4-5			
	Supporting Cluster	I. Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.	1, 2				
		J. Investigate patterns of association in bivariate data.	1, 2				

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Target Sampling Mathematics Grade 8								
Claim	Content Category	Assessment Targets	DOK	Items		Total		
				CAT	PT	Items		
Problem Solving     Modeling and     Data Analysis	Problem Solving (drawn across	A. Apply mathematics to solve well-posed problems arising in everyday life, society, and the workplace.	2, 3	2	1–2	8-10		
		<ul> <li>B. Select and use appropriate tools strategically.</li> <li>C. Interpret results in the context of a situation.</li> <li>D. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).</li> </ul>	1, 2, 3	1				
		<ul><li>A. Apply mathematics to solve problems arising in everyday life, society, and the workplace.</li><li>D. Interpret results in the context of a situation.</li></ul>	2, 3	1	1-3			
	Modeling and Data Analysis (drawn across content domains)	<ul> <li>B. Construct, autonomously, chains of reasoning to justify mathematical models used, interpretations made, and solutions proposed for a complex problem.</li> <li>E. Analyze the adequacy of and make improvements to an existing model or develop a mathematical model of a real phenomenon.</li> </ul>	2, 3, 4	1				
		<ul><li>C. State logical assumptions being used.</li><li>F. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).</li></ul>	1, 2, 3	1				
		G. Identify, analyze, and synthesize relevant external resources to pose or solve problems.	3, 4	0				
	Communicating Reasoning (drawn across content domains)	<ul><li>A. Test propositions or conjectures with specific examples.</li><li>D. Use the technique of breaking an argument into cases.</li></ul>	2, 3	3	0-2	8-10		
3. Communicating Reasoning		<ul> <li>B. Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures.</li> <li>E. Distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in the argument—explain what it is.</li> </ul>	2, 3, 4	3				
		<ul> <li>C. State logical assumptions being used.</li> <li>F. Base arguments on concrete referents such as objects, drawings, diagrams, and actions.</li> <li>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.)</li> </ul>	2, 3	2				

- DOK: Depth of Knowledge, consistent with the Smarter Balanced Content Specifications.
- The CAT algorithm will be configured to ensure the following:
  - For Claim 1, each student will receive at least 7 CAT items at DOK 2 or higher.
  - For Claim 3, each student will receive at least 2 CAT items at DOK 3 or higher.
  - For combined Claims 2 and 4, each student will receive at least 2 CAT items at DOK 3 or higher.



Target Sampling Mathematics Grade 11							
Claim	Content Category	Assessment Targets	DOK	Items		Total	
				CAT	PT	Items	
		D. Interpret the structure of expressions.	1, 2	2	-		
		E. Write expressions in equivalent forms to solve problems.	1, 2				
		F. Perform arithmetic operations on polynomials.	2	1			
		G. Create equations that describe numbers or relationships.	1, 2	4.5			
	Priority Cluster	H. Understand solving equations as a process of reasoning and explain the reasoning.	1, 2	<del>-</del> 4-5 -		19-22	
		Solve equations and inequalities in one variable.	1, 2				
		J. Represent and solve equations and inequalities graphically.	1, 2	2			
1. Concepts and		K. Understand the concept of a function and use function notation.	1, 2	3-4	0		
Procedures		L. Interpret functions that arise in applications in terms of a context.	1, 2				
		M. Analyze functions using different representations.	1, 2, 3				
		N. Build a function that models a relationship between two quantities.	2				
		Define trigonometric ratios and solve problems involving right triangles.	1, 2	2			
	Supporting Cluster	P. Summarize, represent, and interpret data on a single count or measurement variable.	2	1-2			
		A. Extend the properties of exponents to rational exponents.	1, 2	1 1			
		B. Use properties of rational and irrational numbers.	1, 2				
		C. Reason quantitatively and use units to solve problems.	1, 2				

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Target Sampling Mathematics Grade 11							
Claim	Content Category	Assessment Targets	DOK	Items		Total Items	
				CAT	PT	Tioms	
Problem Solving     Modeling and	Problem Solving (drawn across content domains)	A. Apply mathematics to solve well-posed problems arising in everyday life, society, and the workplace.	2, 3	2	1–2	8-10	
Data Analysis		<ul> <li>B. Select and use appropriate tools strategically.</li> <li>C. Interpret results in the context of a situation.</li> <li>D. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).</li> </ul>	1, 2, 3	1			
	Modeling and Data Analysis (drawn across content domains)	<ul><li>A. Apply mathematics to solve problems arising in everyday life, society, and the workplace.</li><li>D. Interpret results in the context of a situation.</li></ul>	2, 3	1	1–3		
		<ul> <li>B. Construct, autonomously, chains of reasoning to justify mathematical models used, interpretations made, and solutions proposed for a complex problem.</li> <li>E. Analyze the adequacy of and make improvements to an existing model or develop a mathematical model of a real phenomenon.</li> </ul>	2, 3, 4	1			
		<ul><li>C. State logical assumptions being used.</li><li>F. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flow charts, or formulas).</li></ul>	1, 2, 3	1			
		G. Identify, analyze, and synthesize relevant external resources to pose or solve problems.	3, 4	0			
3. Communicating Reasoning	(drawn across content	A. Test propositions or conjectures with specific examples.     D. Use the technique of breaking an argument into cases.	2, 3	3	0-2	8-10	
		<ul> <li>B. Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures.</li> <li>E. Distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in the argument—explain what it is.</li> </ul>	2, 3, 4	3			
		<ul> <li>C. State logical assumptions being used.</li> <li>F. Base arguments on concrete referents such as objects, drawings, diagrams, and actions.</li> <li>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.)</li> </ul>	2, 3	2			

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