PARCC

Partnership for Assessment of Readiness for College and Careers

Informational Guide

to

Grade 7 Math

Summative Assessment

Overview

The PARCC assessment system is a cohesive set of tests that students will take during the school year that include summative and non-summative components (diagnostic and mid-year assessments). This guide has been prepared to provide specific information about the PARCC Summative Assessments. The PARCC Assessments are based upon Evidence-Centered Design (ECD). Evidence-Centered Design is a systematic approach to test development. The design work begins with developing **claims** (the inferences we want to draw about what students know and can do). Next, **evidence statements** are developed to describe the tangible things we could point to, highlight or underline in a student work product that would help us prove our claims. Then, **tasks** are designed to elicit this tangible evidence.

This guide provides information on the following for the Grade 7 Math Summative Assessments:

- PARCC Claims Structure
- PARCC Task Types
- PARCC Test Blueprint
- PARCC Evidence Statements and Tables[◊]
- PARCC Assessment Policies

[◊] The Evidence Tables in this document are formatted to assist educators in understanding the content of the summative assessment. Evidence Statements are grouped to indicate those assessable as Type I items, Type II items, and Type III items.

Claims Structure*: Grade 7

Master Claim: On-Track for college and career readiness. The degree to which a student is college and career ready (or "on-track" to being ready) in mathematics. The student solves grade-level /course-level problems in mathematics as set forth in the Standards for Mathematical Content with connections to the Standards for Mathematical Practice.

Sub-Claim A: Major Content[1] with Connections to Practices
The student solves problems involving the Major Content[1] for her grade/course with connections to the Standards for Mathematical Practice.

29 points

Sub-Claim B: Additional & Supporting Content[2] with Connections to Practices
The student solves problems involving the Additional and Supporting Content[2] for her grade/course with connections to the Standards for Mathematical Practice.

11 points

Sub-Claim C: Highlighted Practices MP.3,6 with Connections to Content[3] (expressing mathematical reasoning)
The student expresses grade/course-level appropriate mathematical reasoning by constructing viable arguments, critiquing the reasoning of others, and/or attending to precision when making mathematical statements.

14 points

Sub-Claim D: Highlighted Practice MP.4 with Connections to Content (modeling/application)

The student solves real-world problems with a degree of difficulty appropriate to the grade/course by applying knowledge and skills articulated in the standards for the current grade/course (or for more complex problems, knowledge and skills articulated in the standards for previous grades/courses), *engaging particularly in the Modeling practice*, and where helpful making sense of problems and persevering to solve them (MP. 1),reasoning abstractly and quantitatively (MP. 2), using appropriate tools strategically (MP.5), looking for and making use of structure (MP.7), and/or looking for and expressing regularity in repeated reasoning (MP.8).

12 points

Total Exam Score Points: 66 points

[1] For the purposes of the PARCC Mathematics assessments, the Major Content in a grade/course is determined by that grade level's Major Clusters as identified in the *PARCC Model Content Frameworks v.3.0* for Mathematics. Note that tasks on PARCC assessments providing evidence for this claim will sometimes require the student to apply the knowledge, skills, and understandings from across several Major Clusters.

[2] The Additional and Supporting Content in a grade/course is determined by that grade level's Additional and Supporting Clusters as identified in the *PARCC Model Content Frameworks v.3.0* for Mathematics.

[3] For Grades 3-8, Sub-Claim C includes only Major Content.

*Updated July 2015 to reflect new point totals

Overview of PARCC Mathematics Task Types

Task Type	Description	Reporting Categories	Scoring Method	Mathematical Practice(s)
Type I	Conceptual understanding, fluency, and application	**Sub-claim A:** Solve problems involving the major content for the grade level **Sub-claim B:** Solve problems involving the additional and supporting content for the grade level	Computer-scored only	Can involve any or all mathematical practice standards
Type II	Written arguments/ justifications, critique of reasoning, or precision in mathematical statements	**Sub-claim C:** Express mathematical reasoning by constructing mathematical arguments and critiques	a mix of computer-scored and hand-scored tasks	Primarily MP.3 and MP.6, but may also involve any of the other practices
Type III	Modeling/application in a real-world context or scenario	**Sub-claim D:** solve real-world problems engaging particularly in the modeling practice	a mix of computer-scored and hand-scored tasks	Primarily MP.4, but may also involve any of the other practices

Grade 7 High Level Blueprint

Summative Assessment *			
	Task Type/ Point Value	Number of Tasks	Total Points
Number and Point Values for each Task Type	Type I 1 Point	24	24
	Type I 2 Point	6	12
	Type I 4 Point	1	4
	Type II 3 Point	2	6
	Type II 4 Point	2	8
	Type III 3 Point	2	6
	Type III 6 Point	1	6
	Total	**38**	**66**
Percentage of Assessment Points by Task Type	Type I	(40/66) 61%	
	Type II	(14/66) 21%	
	Type III	(12/66) 18%	

*The assessment will also include embedded field-test items which will not count towards a student's score.

Evidence Statement Keys

Evidence statements describe the knowledge and skills that an assessment item/task elicits from students. These are derived directly from the Common Core State Standards for Mathematics (the standards), and they highlight the advances of the standards, especially around their focused coherent nature. The evidence statement keys for grades 3 through 8 will begin with the grade number. High school evidence statement keys will begin with "HS" or with the label for a conceptual category. Together, the five different types of evidence statements described below provide the foundation for ensuring that PARCC assesses the full range and depth of the standards which can be downloaded from http://www.corestandards.org/Math/.

An Evidence Statement might:

1. **Use exact standard language** – For example:

   - 8.EE.1 - Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example,* $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$. This example uses the exact language as standard 8.EE.1

2. **Be derived by focusing on specific parts of a standard** – For example: 8.F.5-1 and 8.F.5-2 were derived from splitting standard 8.F.5:

   - 8.F.5-1 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear).
   - 8.F.5-2 Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

   Together these two evidence statements are standard 8.F.5:

   Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or 2 decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

3. **Be integrative (Int) –** Integrative evidence statements allow for the testing of more than one of the standards on a single item/task without going beyond the standards to create new requirements. An integrative evidence statement might be integrated across all content within a grade/course, all standards in a high school conceptual category, all standards in a domain, or all standards in a cluster. For example:

   - **Grade/Course – 4.Int.2**[§] (Integrated across Grade 4)
   - **Conceptual Category – F.Int.1**[§] (Integrated across the Functions Conceptual Category)
   - **Domain – 4.NBT.Int.1**[§] (Integrated across the Number and Operations in Base Ten Domain)
   - **Cluster** – **3.NF.A.Int.1**[§] (Integrated across the Number and Operations – Fractions Domain, Cluster A)

4. **Focus on mathematical reasoning–** A reasoning evidence statement (keyed with C) will state the type of reasoning that an item/task will require and the content scope from the standard that the item/task will require the student to reason about. For example:

- 3.C.2[§] -- Base explanations/reasoning on the relationship between addition and subtraction or the relationship between multiplication and division.
  - Content Scope: Knowledge and skills are articulated in 3.OA.6
- 7.C.6.1[§] – Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures.
  - Content Scope: Knowledge and skills are articulated in 7.RP.2

  Note: When the focus of the evidence statement is on reasoning, the evidence statement may also require the student to reason about securely held knowledge from a previous grade.

5. **Focus on mathematical modeling –** A modeling evidence statement (keyed with D) will state the type of modeling that an item/task will require and the content scope from the standard that the item/task will require the student to model about. For example:

- 4.D.2[§] – Solve multi-step contextual problems with degree of difficulty appropriate to Grade 4 requiring application of knowledge and skills articulated in 3.OA.A, 3.OA.8,3.NBT, and/or 3.MD.

  Note: The example 4.D.2 is of an evidence statement in which an item/task aligned to the evidence statement will require the student to model on grade level, using securely held knowledge from a previous grade.

- HS.D.5[§] - Given an equation or system of equations, reason about the number or nature of the solutions.
  - Content scope: A-REI.11, involving any of the function types measured in the standards.

[§] The numbers at the end of the integrated, modeling and reasoning Evidence Statement keys are added for assessment clarification and tracking purposes. For example, 4.Int.2 is the second integrated Evidence Statement in Grade 4.

Grade 7 Evidence Statements
Listing by Type I, Type II, and Type III

The PARCC Evidence Statements for Grade 7 Mathematics are provided starting on the next page. The list has been organized to indicate whether items designed are aligned to an Evidence Statement used for Type I items, Type II items (reasoning), or Type III items (modeling).

Evidence Statements are presented in the order shown below and are color coded:

Peach – Evidence Statement is applicable to Type I items.

Lavender – Evidence Statement is applicable to Type II items.

Aqua – Evidence Statement is applicable to Type III items.

Grade 7 Evidence Statements

Type I Type II Type III

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator
A	7.RP.1	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction 1/2/1/4 miles per hour, equivalently 2 miles per hour.*	i) Tasks have a real-world context. ii) Tasks do not assess unit conversions.	MP.2 MP.4 MP.6	Yes
A	7.RP.2a	Recognize and represent proportional relationships between quantities: a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.	i) Tasks have "thin context"[2] or no context. ii) Tasks are not limited to ratios of whole numbers. iii) Tasks use only coordinates in Quadrant 1 and use only a positive constant of proportionality.	MP.2 MP.5	Yes
A	7.RP.2b	Recognize and represent proportional relationships between quantities: b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.	i) Tasks may or may not have a context. ii) Tasks sample equally across the listed representations (graphs, equations, diagrams, and verbal descriptions). iii) Tasks use only coordinates in Quadrant 1 and use only a positive constant of proportionality.	MP.2 MP.5 MP.8	No
A	7.RP.2c	Recognize and represent proportional relationships between quantities: c. Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.*	i) Tasks have a context. ii) Tasks use only coordinates in Quadrant 1 and use only a positive constant of proportionality.	MP.2 MP.8	No
A	7.RP.2d	Recognize and represent proportional relationships between quantities. d. Explain what a point (x, y) on the graph of a proportional relationships means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.	i) Tasks require students to interpret a point (x, y) on the graph of a proportional relationship in terms of the situation. For the explain aspect of 7.RP.2d, see 7.C.6.1. ii) Tasks use only coordinates in Quadrant 1 and use only a positive constant of proportionality	MP.2 MP.4	No

Grade 7 Evidence Statements

Type I Type II Type III

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator
A	7.RP.3-1	Use proportional relationships to solve multistep ratio problems.	i) Tasks will include proportional relationships that only involve positive numbers.	MP.1 MP.2 MP.6	Yes
A	7.RP.3-2	Use proportional relationships to solve multistep percent problems. *Examples: simple interest, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.*	-	MP.1 MP.2 MP.5 MP.6	Yes
A	7.NS.1a	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.*	-	MP.5	No
A	7.NS.1b-1	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. b. Understand p + q as the number located a distance |q| from p, in the positive or negative direction depending on whether q is positive or negative.	i) Tasks do not have a context. ii) Tasks are not limited to integers. iii) Tasks involve a number line. iv) Tasks do not require students to show in general that a number and its opposite have a sum of 0; for this aspect of 7.NS.1b-1, see 7.C.1.1 and 7.C.2.	MP.5 MP.7	No
A	7.NS.1b-2	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. b. Interpret sums of rational numbers by describing real-world contexts.	i) Tasks require students to produce or recognize real-world contexts that correspond to given sums of rational numbers. ii) Tasks are not limited to integers. iii) Tasks do not require students to show in general that a number and its opposite have a sum of 0; for this aspect of 7.NS.1b-1, see 7.C.1.1 and 7.C.2	MP.2 MP.3 MP.5	No

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Grade 7 Evidence Statements

Type I Type II Type III

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator
A	7.NS.1c-1	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. c. Understand subtraction of rational numbers as adding the additive inverse, p – q = p + (–q). Apply this principle in real-world contexts.	i) Tasks may or may not have a context. ii) Tasks are not limited to integers. iii) Contextual tasks might, for example, require students to create or identify a situation described by a specific equation of the general form p – q = p + (–q) such as 3 – 5 = 3 + (–5). iv) Non-contextual tasks are not computation tasks but rather require students to demonstrate conceptual understanding, for example, by identifying a difference that is equivalent to a given difference. For example, given the difference –1/3 – (1/5 + 5/8), the student might be asked to recognize the equivalent expression –1/3 + –(1/5 + 5/8).	MP.2 MP.7 MP.5	No
A	7.NS.1d	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. d. Apply properties of operations as strategies to add and subtract rational numbers	i) Tasks do not have a context. ii) Tasks are not limited to integers. iii) Tasks may involve sums and differences of 2 or 3 rational numbers. iv) Tasks require students to demonstrate conceptual understanding, for example, by producing or recognizing an expression equivalent to a given sum or difference. For example, given the sum –8.1 + 7.4, the student might be asked to recognize or produce the equivalent expression –(8.1 – 7.4).	MP.7 MP.5	No
A	7.NS.2a-1	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (–1)(–1) = 1 and the rules for multiplying signed numbers.	i) Tasks do not have a context. ii) Tasks require students to demonstrate conceptual understanding, for example by providing students with a numerical expression and requiring students to produce or recognize an equivalent expression using properties of operations. For example, given the expression (–3)(6 + –4 + –3), the student might be asked to recognize that the given expression is equivalent to (–3)(6 + –4) + (–3)(–3).	MP.7	No
A	7.NS.2a-2	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. Interpret products of rational numbers by describing real-world contexts.	-	MP.2 MP.4	No

Grade 7 Evidence Statements

Type I Type II Type III

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator
A	7.NS.2b-1	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then -(p/q) = (–p)/q =p/(–q).	i) Tasks do not have a context. ii) Tasks require students to demonstrate conceptual understanding, for example, by providing students with a numerical expression and requiring students to produce or recognize an equivalent expression.	MP.7	No
A	7.NS.2b-2	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. c. Interpret quotients of rational numbers by describing real-world contexts.	-	MP.2 MP.4	No
A	7.NS.2c	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. c. Apply properties of operations as strategies to multiply and divide rational numbers.	i) Tasks do not have a context. ii) Tasks are not limited to integers. iii) Tasks may involve products and quotients of 2 or 3 rational numbers. iv) Tasks require students to compute a product or quotient, or demonstrate conceptual understanding, for example, by producing or recognizing an expression equivalent to a given expression. For example, given the expression (—8)(6)/(—3), the student might be asked to recognize or produce the equivalent expression —(8/3)(—6).	MP.7	No
A	7.NS.3	Solve real-world and mathematical problems involving the four operations with rational numbers.	i) Tasks are one-step word problems. ii) Tasks sample equally between addition/subtraction and multiplication/division. iii) Tasks involve at least one negative number. iv) Tasks are not limited to integers.	MP.1 MP.4	No
A	7.EE.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	i) Tasks are not limited to integer coefficients. ii) Tasks may involve issues of strategy, e.g., by providing a factored expression such as y(3+x+k) and a fully expanded expression 3y + xy + ky, and requiring students to produce or identify a new expression equivalent to both (such as y(3+x) + yk).	MP.7	No
A	7.EE.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05."*	-	MP.7	No

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator
A	7.EE.3	*Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*	-	MP.5	Yes
A	7.EE.4a-1	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers.	i) Comparison of an algebraic solution to an arithmetic solution is not assessed here; for this aspect of 7.EE.4a, see 7.C.5.	MP.1 MP.2 MP.6 MP.7	No
A	7.EE.4a-2	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Fluently solve equations of the form px + q = r and p(x+q) = r, where p, q, and r are specific rational numbers.	i) Each task requires students to solve two equations (one of each of the given two forms). Only the answer is required. ii) Comparison of an algebraic solution to an arithmetic solution is not assessed here; for this aspect of 7.EE.4a, see 7.C.5.	MP.6 MP.7	No
A	7.EE.4b	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. b. Solve word problems leading to inequalities of the form px + q > r or px + q < r, where p, q and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.*	i) Tasks may involve <, >, ≤ or ≥.	MP.1 MP.2 MP.5 MP.6 MP.7	No

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Grade 7 Evidence Statements

Type I Type II Type III

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator
B	7.G.1	Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	i) Tasks may or may not have context.	MP.2 MP.5	Yes
B	7.G.2	Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.	i) Tasks do not have a context. ii) Most of tasks should focus on the drawing component of this evidence statement.	MP.3 MP.5 MP.6	Yes
B	7.G.3	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	i) Tasks have “thin context” or no context.	MP.5	Yes
B	7.G.4-1	Know the formulas for the area and circumference of a circle and use them to solve problems.	i) Tasks may or may not have context. ii) Tasks may require answers to be written in terms of π.	MP.4 MP.5	Yes
B	7.G.4-2	Give an informal derivation of the relationship between the circumference and area of a circle	i) Tasks require students to identify or produce a logical conclusion about the relationship between the circumference and the area of a circle.	MP.2 MP.5	Yes
B	7.G.5	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.	i) Tasks may or may not have context. ii) Tasks involving writing or solving an equation should not go beyond the equation types described in 7.EE.4a. [px +q = r and p(x + q) = r where p, q, and r are specific rational numbers.]	MP.5 MP.6	Yes
B	7.G.6	Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	i) Tasks may or may not have context.	MP.1 MP.5	Yes
B	7.SP.1	Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.	-	MP.4	Yes

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator
B	7.SP.2	Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.*	-	MP.4	Yes
B	7.SP.3	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.*	i) Tasks may use mean absolute deviation, range, or interquartile range as a measure of variability	MP.4	Yes
B	7.SP.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh grade science book are generally longer than the words in a chapter of a fourth grade science book.*	-	MP.4	Yes
B	7.SP.5	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.	i) Tasks may involve probabilities that are certain (1) or impossible (0).	MP.4	Yes
B	7.SP.6	Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*	i) Tasks require the student to make a prediction based on long-run relative frequency in data from a chance process.	MP.4	Yes

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator
B	7.SP.7a	Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.*	i) Simple events only.	MP.4	Yes
B	7.SP.7b	Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*	-	MP.4	Yes
B	7.SP.8a	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.	-	MP.4 MP.5	Yes
B	7.SP.8b	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space, which compose the event.	-	MP.4 MP.5	Yes
B	7.SP.8c	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. c. Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?*	-	MP.4 MP.5	Yes

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator
C	7.C.1.1	Base explanations/reasoning on the properties of operations. Content Scope: Knowledge and skills articulated in 7.NS.1 and 7.NS.2	i) Tasks should not require students to identify or name properties.	MP.1 MP.2 MP.3 MP.5 MP.6 MP.7	Yes
C	7.C.1.2	Base explanations/reasoning on the properties of operations. Content Scope: Knowledge and skills articulated in 7.EE.1	i) Tasks should not require students to identify or name properties.	MP.3 MP.6 MP.7	Yes
C	7.C.2	Base explanations/reasoning on the relationship between addition and subtraction or the relationship between multiplication and division. Content Scope: Knowledge and skills articulated in 7.NS.1 and 7.NS.2	-	MP.1 MP.2 MP.3 MP.5 MP.6 MP.7	Yes
C	7.C.3	Base explanations/reasoning on a number line diagram (whether provided in the prompt or constructed by the student in her response). Content Scope: Knowledge and skills articulated in 7.NS.A	-	MP.1 MP.2 MP.3 MP.5 MP.6 MP.7	Yes
C	7.C.4	Base explanations/reasoning on a coordinate plane diagram (whether provided in the prompt or constructed by the student in her response). Content Scope: Knowledge and skills articulated in 7.RP.A	i) Tasks use only coordinates in Quadrant 1 and use only a positive constant of proportionality.	MP.2 MP.3 MP.5 MP.6	Yes
C	7.C.5	Given an equation, present the solution steps as a logical argument that concludes with the set of solutions (if any). Content Scope: Knowledge and skills articulated in 7.EE.4a	-	MP.1 MP.2 MP.3 MP.6 MP.7	Yes

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator
C	7.C.6.1	Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures. Content Scope: Knowledge and skills articulated in 7.RP.2	i) Tasks use only coordinates in Quadrant 1 and use only a positive constant of proportionality.	MP.2 MP.3 MP.6	Yes
C	7.C.7.1	Present solutions to multi-step problems in the form of valid chains of reasoning, using symbols such as equals signs appropriately (for example, rubrics award less than full credit for the presence of nonsense statements such as 1 + 4 = 5 + 7 = 12, even if the final answer is correct), or identify or describe errors in solutions to multi-step problems and present corrected solutions. Content Scope: Knowledge and skills articulated in 7.RP.3	i) Tasks use only coordinates in Quadrant 1 and use only a positive constant of proportionality.	MP.1 MP.3 MP.6 MP.7 MP.8	Yes
C	7.C.7.2	Present solutions to multi-step problems in the form of valid chains of reasoning, using symbols such as equals signs appropriately (for example, rubrics award less than full credit for the presence of nonsense statements such as 1 + 4 = 5 + 7 = 12, even if the final answer is correct), or identify or describe errors in solutions to multi-step problems and present corrected solutions. Content Scope: Knowledge and skills articulated in 7.NS.2d	i) Tasks focus on demonstrating understanding that a number is rational. ii) Tasks do not directly assess the ability to divide two whole numbers.	MP.1 MP.3 MP.6 MP.7 MP.8	Yes
C	7.C.7.3	Present solutions to multi-step problems in the form of valid chains of reasoning, using symbols such as equals signs appropriately (for example, rubrics award less than full credit for the presence of nonsense statements such as 1 + 4 = 5 + 7 = 12, even if the final answer is correct), or identify or describe errors in solutions to multi-step problems and present corrected solutions. Content Scope: Knowledge and skills articulated in 7.NS.3	-	MP.1 MP.3 MP.6 MP.7 MP.8	Yes

Grade 7 Evidence Statements

Type I Type II Type III

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator
C	7.C.7.4	Present solutions to multi-step problems in the form of valid chains of reasoning, using symbols such as equals signs appropriately (for example, rubrics award less than full credit for the presence of nonsense statements such as 1 + 4 = 5 + 7 = 12, even if the final answer is correct), or identify or describe errors in solutions to multi-step problems and present corrected solutions. Content Scope: Knowledge and skills articulated in 7.EE.3	-	MP.1 MP.3 MP.6 MP.7 MP.8	Yes
C	7.C.8	Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures. Content Scope: Knowledge and skills articulated in 6.NS.C, 6.EE.A, 6.EE.B.	i) Tasks may have scaffolding[1], if necessary, in order to yield a degree of difficulty appropriate to Grade 7.	MP.3 MP.6	Yes

Grade 7 Evidence Statements

Type I Type II Type III

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MPs	Calculator
D	7.D.1	Solve multi-step contextual word problems with degree of difficulty appropriate to Grade 7, requiring application of knowledge and skills articulated in Type I, Sub-Claim A Evidence Statements.	i) Tasks may have scaffolding, if necessary, in order to yield a degree of difficulty appropriate to grade 7. ii) Tasks involving writing or solving an equation should not go beyond the equation types described in 7.EE.4a. (px +q = r and p(x + q) = r where p, q, and r are specific rational numbers.	MP.1 MP.2 MP.4 MP.5 MP.7	Yes
D	7.D.2	Solve multi-step contextual problems with degree of difficulty appropriate to grade 7, requiring application of knowledge and skills articulated in 6.RP.A, 6.EE.C, 6.G.	i) Tasks may have scaffolding, if necessary, in order to yield a degree of difficulty appropriate to grade 7.	MP.1 MP.2 MP.4 MP.5 MP.7	Yes
D	7.D.3	Micro-models: Autonomously apply a technique from pure mathematics to a real-world situation in which the technique yields valuable results even though it is obviously not applicable in a strict mathematical sense (e.g., profitably applying proportional relationships to a phenomenon that is obviously nonlinear or statistical in nature). Content Scope: Knowledge and skills articulated in Type I, Sub-Claim A Evidence Statements.	i) Tasks may have scaffolding, if necessary, in order to yield a degree of difficulty appropriate to grade 7.	MP.1 MP.2 MP.4, MP.5 MP.7	Yes
D	7.D.4	Reasoned estimates: Use reasonable estimates of known quantities in a chain of reasoning that yields an estimate of an unknown quantity. Content Scope: Knowledge and skills articulated in Type I, Sub-Claim A Evidence Statements.	i) Tasks may have scaffolding, if necessary, in order to yield a degree of difficulty appropriate to grade 7.	MP.1 MP.2 MP.4 MP.5 MP.7	Yes

[1] Scaffolding in a task provides the student with an entry point into a pathway for solving a problem. In unscaffolded tasks, the student determines his/her own pathway and process. Both scaffolded and unscaffolded tasks will be included in reasoning and modeling items.

[2] "Thin context" is a sentence or phrase that establishes a concrete referent for the quantity/quantities in the problem, in such a way as to provide meaningful avenues for mathematical intuition to operate, yet without requiring any sort of further analysis of the context. For example, a task could provide a reason for the use of scientific notation such as, "The number represents the distance between two planets."

Grade 7 Assessment Policies

Calculators:

- PARCC mathematics assessments allow a four-function calculator with square root and percentage functions in Grade 7.
- For students who meet the guidelines in the *PARCC Accessibility Features and Accommodations Manual* for a calculation device, this accommodation allows a calculation device to be used on the non- calculator section of any PARCC mathematics assessment. The student will need a hand-held calculator because an online calculator will not be available. If a student needs a specific calculator (e.g., large key, talking), the student can also bring his or her own, provided it is specified in his or her approved IEP or 504 Plan and meets the same guidelines.

Additionally, schools must adhere to the following additional guidance regarding calculators:

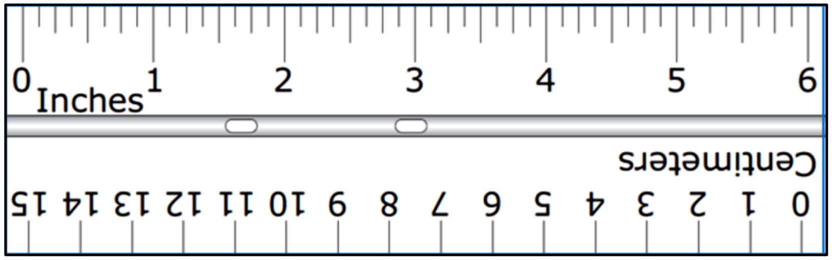
- No calculators with Computer Algebra System (CAS) features are allowed.
- No tablet, laptop (or PDA), or phone-based calculators are allowed during PARCC assessments.
- Students are not allowed to share calculators within a testing session.
- Test administrators must confirm that memory on all calculators has been cleared before and after the testing sessions.
- Calculators with "QWERTY" keyboards are not permitted.
- If schools or districts permit students to bring their own hand-held calculators for PARCC assessment purposes, test administrators must confirm that the calculators meet PARCC requirements as defined above.

Rulers and Protractors:

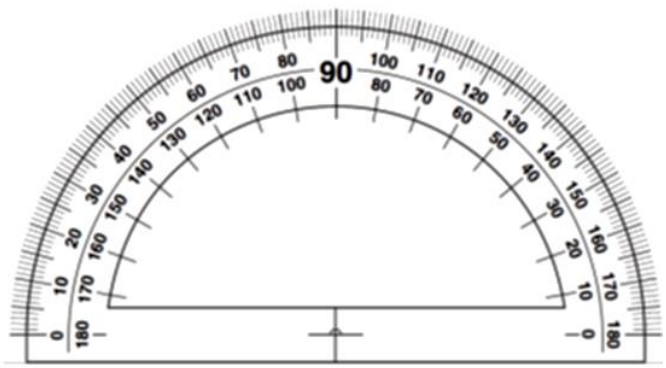
- Rulers are used on the Grade 7 PARCC Assessments.
- For computer-based assessments, the grade-appropriate ruler and protractor is provided through the computer-based platform.
- For paper-based assessments, rulers and protractors are included in the PARCC-provided materials that are shipped to schools/districts.
- Schools are **not** allowed to provide their own rulers and protractors for Grade 7 PARCC assessments.

To practice with the computer-based rulers and protractors, please visit the PARCC Practice Test at http://practice.parcc.testnav.com/.

Grade 7 ruler provided on the PARCC paper-based mathematics assessments (not actual size):



Grade 7 protractor provided on the PARCC paper-based mathematics assessments (not actual size):



Scratch Paper (required):

- Blank scratch paper (graph, lined or un-lined paper) is intended for use by students to take notes and work through items during testing. If graph paper is used during instruction, it is recommended that schools provide graph paper as scratch paper for mathematics units. At least one sheet of scratch paper per unit must be provided to each student. Any work on scratch paper will **not** be scored.

PARCC
Partnership for Assessment of Readiness for College and Careers

Mathematics Reference Sheet:

- Students in grade 7 will be provided a reference sheet with the information shown below. Notice that the names of the measurement formulas provided on the reference sheet only include the name of the figure or object to which the measurement formula(s) is applied. The intent of the Common Core State Standards in Mathematics at grades 7 is to know and apply the measurement formulas. In order for students to be able to choose the correct formula, they will need to know the formula.

Grade 7
Reference Sheet

1 inch = 2.54 centimeters
1 meter = 39.37 inches
1 mile = 5280 feet
1 mile = 1760 yards
1 mile = 1.609 kilometers

1 kilometer = 0.62 mile
1 pound = 16 ounces
1 pound = 0.454 kilograms
1 kilogram = 2.2 pounds
1 ton = 2000 pounds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 gallon = 3.785 liters
1 liter = 0.264 gallons
1 liter = 1000 cubic centimeters

Triangle	$A = \frac{1}{2}bh$
Parallelogram	$A = bh$
Circle	$A = \pi r^2$
Circle	$C = \pi d \text{ or } C = 2\pi r$
General Prisms	$V = Bh$

- Students in grade 7 will be required to know relative sizes of measurement units within one system of units. Therefore, the following requisite knowledge is necessary for the grade 6 assessments and is **not** provided in the reference sheet.

1 meter = 100 centimeters
1 meter = 1000 millimeters
1 kilometer = 1000 meters
1 kilogram = 1000 grams
1 liter = 1000 milliliters

1 foot = 12 inches
1 yard = 3 feet
1 day = 24 hours
1 minute = 60 seconds
1 hour = 60 minutes

The formulas for the area of a rectangle are also considered to be requisite knowledge because the intent of the Common Core State Standards in Mathematics for students in grade 7 is to have a conceptual understanding of area of rectangles.

Area of a Rectangle	$A = lw$ or $A = bh$