

BENCHMARK COMPLEXITY REPORT

MATHEMATICS GRADE 7



Key: **OCS Code** = The benchmark code. Consists of Grade (K-8), Domain (2-3 character alpha code), Strand (1-3 character alpha code), Standard (1-9), Benchmark Number (1 or 1-1 and up), and Complexity (a, b, c).
Benchmark = The wording of the benchmark.
CCSS Code = Common Core State Standards, developed by National Governors Association Center for Best Practices, Council of Chief State School Officers (www.corestandards.org).
CRS Strand = ACT College Readiness Standards developed by ACT, Inc. (www.act.org).
The CRS Strands are: BOA = Basic Operations & Applications, PSD = Probability/Statistics/Data, NCP = Numbers/Concepts/Properties, XEI = Expression/Equation & Inequality, GRE = Graphical Representations, PPF = Properties of Plane Figures, MEA = Measurement, FUN = Functions.

a. Low Complexity				b. Intermediate Complexity				c. High Complexity			
OCS Code	Benchmark	CCSS Code	CRS Strand	OCS Code	Benchmark	CCSS Code	CRS Strand	OCS Code	Benchmark	CCSS Code	CRS Strand
DOMAIN: Standards for Mathematical Content											
Ratios and Proportional Relationships											
7.SMC.RP.1.1.a	Compute unit rates associated with ratios of fractions	7.RP.A.1	BOA	7.SMC.RP.1.2-2.b	Identify the constant of proportionality or unit rate in a variety of contexts	7.RP.A.2b	BOA	7.SMC.RP.1.2-4.c	Describe what a point (x, y) on the graph of a proportional relationship means in terms of the context	7.RP.A.2d	GRE
7.SMC.RP.1.2-1.a	Determine the proportional relationship between two quantities	7.RP.A.2a	BOA	7.SMC.RP.1.2-3.b	Represent proportional relationships by writing an equation	7.RP.A.2c	BOA	7.SMC.RP.1.3.c	Use proportional relationships to solve multistep ratio and percent problems	7.RP.A.3	BOA
The Number System											
7.SMC.NS.1.1-1.a	Describe situations in which opposite quantities combine to make 0	7.NS.A.1a	NCP	7.SMC.NS.1.1-2.b	Recognize $p + q$ as the number located a distance $ q $ from p	7.NS.A.1b	NCP	7.SMC.NS.1.1-7.c	Apply the principle of absolute value difference in real world contexts	7.NS.A.1c	NCP
7.SMC.NS.1.1-3.a	Show that a number and its opposite have a sum of zero	7.NS.A.1b	NCP	7.SMC.NS.1.1-4.b	Interpret sums of rational numbers by describing real world contexts	7.NS.A.1b	NCP	7.SMC.NS.1.1-8.c	Add and subtract rational numbers using properties of operations	7.NS.A.1d	NCP
				7.SMC.NS.1.1-5.b	Recognize subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$	7.NS.A.1c	NCP	7.SMC.NS.1.2-2.c	Interpret products of rational numbers in real world contexts	7.NS.A.2a	BOA
				7.SMC.NS.1.1-6.b	Show that the distance between two rational numbers on a number line is the absolute value of their difference	7.NS.A.1c	GRE	7.SMC.NS.1.2-5.c	Interpret quotients of rational numbers in real world contexts	7.NS.A.2b	NCP
				7.SMC.NS.1.2-1.b	Show that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations	7.NS.A.2a	BOA	7.SMC.NS.1.2-6.c	Multiply and divide rational numbers by applying properties of operations	7.NS.A.2c	BOA
				7.SMC.NS.1.2-3.b	Divide integers with non-zero divisors	7.NS.A.2b	NCP	7.SMC.NS.1.3.c	Solve real world and mathematical problems using the four operations with rational numbers	7.NS.A.3	BOA
				7.SMC.NS.1.2-4.b	Recognize that every quotient of integers with a non-zero divisor is a rational number	7.NS.A.2b	NCP				
				7.SMC.NS.1.2-7.b	Convert a rational number to a decimal using long division	7.NS.A.2d	NCP				
				7.SMC.NS.1.2-8.b	Show that the decimal form of a rational number terminates in zeros or eventually repeats	7.NS.A.2d	NCP				
Expressions and Equations											
				7.SMC.EE.1.1-1.b	Add and subtract linear expressions with rational coefficients using properties of operations	7.EE.A.1	XEI	7.SMC.EE.2.1-1.c	Solve multi-step real-life and mathematical problems using positive and negative rational numbers in any form, including whole numbers, fractions, and decimals	7.EE.B.3	BOA
				7.SMC.EE.1.1-2.b	Factor linear expressions with rational coefficients using properties of operations	7.EE.A.1	XEI	7.SMC.EE.2.1-2.c	Calculate with positive and negative rational numbers in any form using properties of operations	7.EE.B.3	BOA
				7.SMC.EE.1.1-3.b	Expand linear expressions with rational coefficients using properties of operations	7.EE.A.1	XEI	7.SMC.EE.2.1-3.c	Convert between numeric forms using properties of operations	7.EE.B.3	BOA
				7.SMC.EE.1.2.b	Solve problems by rewriting an expression in different forms	7.EE.A.2	XEI	7.SMC.EE.2.1-4.c	Assess the reasonableness of solutions by mentally computing and estimating with positive and negative rational numbers	7.EE.B.3	BOA
								7.SMC.EE.2.2-1.c	Solve word problems leading to equations of the form $px + q = r$, where p , q , and r are specific rational numbers	7.EE.B.4a	XEI
								7.SMC.EE.2.2-2.c	Solve word problems leading to equations of the form $p(x + q) = r$, where p , q , and r are specific rational numbers	7.EE.B.4a	XEI
								7.SMC.EE.2.2-3.c	Compare the algebraic and arithmetic solutions to word problems by showing the sequence of operations used in each approach	7.EE.B.4a	XEI



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								7.SMC.EE.2.2-4.c	Solve word problems leading to inequalities of the form $px + q > r$, where p , q , and r are specific rational numbers	7.EE.B.4b	XEI
								7.SMC.EE.2.2-5.c	Solve word problems leading to inequalities of the form $px + q < r$, where p , q , and r are specific rational numbers	7.EE.B.4b	XEI
								7.SMC.EE.2.2-6.c	Solve word problems by graphing the solution set of an algebraic inequality	7.EE.B.4b	GRE
								7.SMC.EE.2.2-7.c	Interpret a graph showing the solution set of an algebraic inequality in the context of a word problem	7.EE.B.4b	GRE
Geometry											
7.SMC.G.1.1-1.a	Solve problems involving scale drawings of geometric figures	7.G.A.1	MEA	7.SMC.G.1.2.b	Draw geometric shapes with given conditions	7.G.A.2	MEA	7.SMC.G.1.3.c	Describe the two-dimensional figures that result from slicing three-dimensional figures	7.G.A.3	MEA
7.SMC.G.1.1-2.a	Reproduce a scale drawing using a different scale	7.G.A.1	MEA	7.SMC.G.2.2-1.b	Write equations for an unknown angle in a figure in a multi-step problem	7.G.B.5	PPF	7.SMC.G.2.3-1.c	Solve real world and mathematical problems involving area of two- and three-dimensional objects	7.G.B.6	MEA
7.SMC.G.2.1-1.a	Memorize the formulas for the area and circumference of a circle	7.G.B.4	MEA	7.SMC.G.2.2-2.b	Solve equations for an unknown angle in a figure using facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem	7.G.B.5	PPF	7.SMC.G.2.3-2.c	Solve real world and mathematical problems involving volume of two- and three-dimensional objects	7.G.B.6	MEA
7.SMC.G.2.1-2.a	Solve problems using the formulas for the area and circumference of a circle	7.G.B.4	MEA					7.SMC.G.2.3-3.c	Solve real world and mathematical problems involving surface area of two- and three-dimensional objects	7.G.B.6	MEA
Statistics and Probability											
7.SMC.SP.1.1-1.a	Compare the characteristics of a sample to a statistical population	7.SP.A.1	PSD	7.SMC.SP.1.2-1.b	Use data from a random sample to draw inferences about a population	7.SP.A.2	PSD	7.SMC.SP.3.4-4.c	Design a simulation to generate frequencies for compound events	7.SP.C.8c	PSD
7.SMC.SP.1.1-2.a	Determine under which conditions a sample is representative of a population	7.SP.A.1	PSD	7.SMC.SP.1.2-2.b	Compare multiple or simulated samples of the same size to determine the variation in an estimate or prediction	7.SP.A.2	PSD	7.SMC.SP.3.4-5.c	Use a simulation to generate frequencies for compound events	7.SP.C.8c	PSD
7.SMC.SP.1.1-3.a	Determine under which conditions information obtained from a sample can support valid inferences	7.SP.A.1	PSD	7.SMC.SP.2.1-1.b	Compare the visual overlap of two numerical data distributions with similar variabilities	7.SP.B.3	PSD				
7.SMC.SP.3.1.a	Show that the likelihood or probability of a chance event occurring is a number between 0 and 1	7.SP.C.5	PSD	7.SMC.SP.2.1-2.b	Measure the difference between the centers of two overlapping numerical data distributions by expressing the difference as a multiple of a measure of variability	7.SP.B.3	PSD				
7.SMC.SP.3.4-1.a	Show that the probability of a compound event is the fraction of outcomes in the sample space for which the event occurs	7.SP.C.8a	PSD	7.SMC.SP.2.2-1.b	Use measures of center and variability for numerical data from random samples to draw informal comparative inferences about two populations	7.SP.B.4	PSD				
				7.SMC.SP.2.2-2.b	Draw inferences from two populations by comparing measures of center and variability for numerical data from random samples	7.SP.B.4	PSD				
				7.SMC.SP.3.2-1.b	Approximate the probability of a chance event occurring by collecting data on the chance process that produces it	7.SP.C.6	PSD				
				7.SMC.SP.3.2-2.b	Approximate the probability of a chance event occurring by observing its long-run relative frequency	7.SP.C.6	PSD				
				7.SMC.SP.3.2-3.b	Predict the approximate relative frequency given the probability of a chance event	7.SP.C.6	PSD				
				7.SMC.SP.3.3-1.b	Develop a uniform probability model by assigning equal probability to all outcomes of an event	7.SP.C.7a	PSD				
				7.SMC.SP.3.3-2.b	Use a uniform probability model to determine the probabilities of an event	7.SP.C.7a	PSD				
				7.SMC.SP.3.3-3.b	Develop a non-uniform probability model by observing frequencies in data generated from a chance process	7.SP.C.7b	PSD				



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				7.SMC.SP.3.4-2.b	Create a list, table, or tree diagram to represent sample spaces for compound events	7.SP.C.8b	PSD				
				7.SMC.SP.3.4-3.b	Describe the outcomes of a compound event in everyday language, by analyzing a sample space which composes an event	7.SP.C.8b	PSD				
DOMAIN: Standards for Mathematical Practices											
Solve Problems											
								7.SMP.1.c	Make sense of problems and persevere in solving them	MP1	
Reason											
								7.SMP.2.c	Reason abstractly and quantitatively	MP2	
Construct Arguments											
								7.SMP.3.c	Construct viable arguments and critique the reasoning of others	MP3	
Model											
								7.SMP.4.c	Model with mathematics	MP4	
Use Tools											
								7.SMP.5.c	Use appropriate tools strategically	MP5	
Attend to Precision											
								7.SMP.6.c	Attend to precision	MP6	
Use Structure											
								7.SMP.7.c	Look for and make use of structure	MP7	
Express Regularity											
								7.SMP.8.c	Look for and express regularity in repeated reasoning	MP8	