Grade 6 PBA/MYA

Evidence Statement Key	Evidence Statement Text	Clarifications	MP	Calculator
6.RP.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, "The ratio of wings to beaks in the bird house at the zoo was* 2:1, *because for every* 2 *wings there was* 1 *beak." "For every vote candidate A received, candidate C received nearly three votes."*	i) Expectations for ratios in this grade are limited to ratios of non-complex fractions. (See footnote, CCSS p 42.) The initial numerator and denominator should be whole numbers.	2	No
6.RP.2	Understand the concept of a unit rate *a*/*b* associated with a ratio *a*:*b* with *b*≠0, and use rate language in the context of a ratio relationship. *For example, "This recipe has a ratio of* 3 *cups of flour to* 4 *cups of sugar, so there is* 3/4 *cup of flour for each cup of sugar." "We paid* $75 *for* 15 *hamburgers, which is a rate of* $5 *per hamburger."*	I) Expectations for unit rates in this grade are limited to non-complex fractions. (See footnote, CCSS p 42.) The initial numerator and denominator should be whole numbers.	2	No
6.RP.3a	Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.	i) The testing interface can provide students with a calculation aid of the specified kind for these tasks. ii) Expectations for ratios in this grade are limited to ratios of non-complex fractions. (See footnote, CCSS p 42) The initial numerator and denominator should be whole numbers.	2, 4, 5, 7, 8	Yes
6.NS.1-2	Solve word problems involving division of fractions by fractions. *For example, How much chocolate will each person get if* 3 *people share* 1/2 *lb of chocolate equally? How many* 3/4*-cup servings are in* 2/3 *of a cup of yogurt? How wide is a rectangular strip of land with length* 3/4 *mi and area* 1/2 *square mi?*	i) Only the answer is required; explanations and representations are not assessed here. ii) Note that the italicized examples correspond to three meanings/uses of division: (1) equal sharing; (2) measurement; (3) unknown factor. These meanings/uses of division should be sampled equally. iii) Tasks may involve fractions and mixed numbers but not decimals	4	No
6.NS.5	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperatures above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	i) Tasks do not require students to perform any computations. ii) Students may be asked to recognize the meaning of 0 in the situation, but will not be asked to explain.	2, 5	No

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Evidence Statement Key	Evidence Statement Text	Clarifications	MP	Calculator
6.NS.6a	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$ and that 0 is its own opposite.	i) Tasks have "thin context" or no context.	8, 5	No
6.NS.6b-1	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane.	i) Tasks have "thin context" or no context. ii) Students need not recognize or use traditional notation for quadrants (such as I, II, III, IV). iii) Coordinates are not limited to integers.	5	No
6.NS.6b-2	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. b. Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.	i) Tasks have "thin context" or no contest. ii) Student need not recognize or use traditional notation for quadrants (such as I, II, III, or IV). iii) Coordinates are not limited to integers.	5, 8	No
6.NS.6c-1	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram.	i) Tasks have "thin content" or no content. ii) Coordinates are not limited to integers.	5	No
6.NS.6c-2	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. c. Find and position pairs of integers and other rational numbers on a coordinate plane.	i) Tasks have "thin context" or no contest. ii) Student need not recognize or use traditional notation for quadrants (such as I, II, III, or IV). iii) Coordinates are not limited to integers.	5	No

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Evidence Statement Key	Evidence Statement Text	Clarifications	MP	Calculator
6.EE.1-1	Write numerical expressions involving whole-number exponents.	i) Tasks involve expressing *b*-fold products $a \cdot a \cdot \ldots \cdot a$ in the form a^b, where *a* and *b* are non-zero whole numbers. ii) Tasks do not require use of the laws of exponents.	8	No
6.EE.1-2	Evaluate numerical expressions involving whole-number exponents.	i) Tasks may involve simple fractions raised to small whole-number powers, e.g., $\left(\frac{1}{2}\right)^3$, $\left(\frac{2}{3}\right)^2$. ii) Tasks may involve nonnegative decimals raised to whole-number powers. iii) The testing interface can provide students with a calculation aid of the specified kind for these tasks. iv) Tasks do not have a context.	8	Yes
6.EE.2a	Write, read, and evaluate expressions in which letters stand for numbers. a. Write expressions that record operations with numbers and with letters standing for numbers. *For example, express the calculation "Subtract y from* 5*" as* $5 - y$.	i) Tasks do not have a context. ii) Numerical values in these expressions may include whole numbers, fractions, and decimals. iii) The testing interface can provide students with a calculation aid of the specified kind for these tasks.	8	Yes
6.EE.2b	Write, read, and evaluate expressions in which letters stand for numbers. b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. *For example, describe the expression* $2(8+7)$ *as a product of two factors; view* $(8+7)$ *as both a single entity and a sum of two terms.*	i) Tasks do not have a context. ii) Numerical values in these expressions may include whole numbers, fractions, and decimals. iii) The testing interface can provide students with a calculation aid of the specified kind for these tasks.	7	Yes

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Evidence Statement Key	Evidence Statement Text	Clarifications	MP	Calculator
6.EE.2c-1	Write, read, and evaluate expressions in which letters stand for numbers. c. Evaluate expressions at specific values of their variables. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).	i) Tasks do not have a context. ii) Numerical values in these expressions may include whole number, fractions, and decimals. iii) The testing interface can provide students with a calculation aid of the specified kind for these tasks.	7	Yes
6.EE.2c-2	Write, read, and evaluate expressions in which letters stand for numbers. c. Evaluate expressions that arise from formulas used in real-world problems at specific values of their variables. *For example, use the formulas* $V = s^3$ *and* $A = 6s^2$ *to find the volume and surface area of a cube with sides of length* $s = \frac{1}{2}$.	i) Tasks are simple applications of formulas that are provided in the prompt. ii) Tasks do not require the student to manipulate the formula or isolate variables to solve an equation. iii) Tasks have "thin context" or no context. iv) Numerical values in these expressions may include whole numbers, fractions, and decimals. v) The testing interface can provide students with a calculation aid of the specified kind for these tasks.	7	Yes
6.EE.5-1	Understand solving an equation as a process of answering a question: which values from a specified set, if any, make the equation true?	i) The testing interface can provide students with a calculation aid of the specified kind for these tasks.	5, 6	Yes
6.EE.5-2	Use substitution to determine whether a given number in a specified set makes an inequality true.	i) 80% of tasks involve values from an infinite set of nonnegative numbers (e.g., even numbers; whole numbers; fractions). 20% of tasks involve values from a finite set of nonnegative numbers (e.g., {2, 5, 7, 9}). ii) The testing interface can provide students with a calculation aid of the specified kind for these tasks.	6	Yes

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Evidence Statement Key	Evidence Statement Text	Clarifications	MP	Calculator
6.EE.6	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	i) Tasks may require students to write an expression to represent a real-world or mathematical problem. Tasks do not require students to find a solution. ii) Tasks may require students to interpret a variable as a specific unknown number, or, as a number that could represent any number in a specified set.	2, 6, 7	No
6.EE.7	Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q, and x are nonnegative rational numbers.	i) Problem situations are of "algebraic" type, not "arithmetic" type. See ITN Appendix F, Table F.d and the Progressions for Expressions and Equations, pp. 3, 4. ii) 50% of tasks involve whole number values of p, q, and/or x; 50% of tasks involve fraction or decimal value of p, q, and/or x. Fractions and decimals should not appear together in the same problem. (Cf, 7.EE.3.) iii) A valid equation and the correct answer are both required for full credit. iv) The testing interface can provide students with a calculation aid of the specified kind for these tasks.	1, 2, 6, 7	Yes
6.EE.9	Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. *For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation* $d = 65t$ *to represent the relationship between distance and time.*	i) The testing interface can provide students with a calculation aid of the specified kind for these tasks.	2, 4, 6, 8	Yes

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Evidence Statement Key	Evidence Statement Text	Clarifications	MP	Calculator
6.C.1.1	Base explanations/reasoning on the properties of operations. Content Scope: Knowledge and skills articulated in 6.EE.3, 6.EE.4	i)Tasks should not require students to identify or name properties	3, 6, 7	Yes
6.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 6.NS.1	None	2, 3, 4, 6	Yes
6.C.3	Base arithmetic explanations/reasoning on concrete referents such as diagrams (whether provided in the prompt or constructed by the student in her response), connecting the diagrams to a written (symbolic) method. Content Scope: Knowledge and skills articulated in 6.NS.1	None	2, 3, 4, 5, 6	Yes
6.C.4	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 6.NS.6, 6.NS.7	None	3, 5, 6	Yes
6.C.5	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 6.NS.6, 6.NS.7, 6.NS.8	None	3, 4, 5, 6	Yes
6.C.6	Given an equation, present the solution steps as a logical argument that concludes with a solution. Content Scope: Knowledge and skills articulated in 6.EE.B	i) Tasks do not require students to write an equation or inequality	3, 6	Yes
6.C.7	Construct autonomously, chains of reasoning that will justify or refute propositions or conjectures. Content Scope: Knowledge and skills articulated in 6.EE.4	None	3, 6	Yes

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Evidence Statement Key	Evidence Statement Text	Clarifications	MP	Calculator
6.C.8.1	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 6.RP.A	i) Expectations for ratios in this grade are limited to ratios of non-complex fractions. (See footnote, CCSS p 42.) The initial numerator and denominator should be whole numbers.	2, 3, 6	Yes
6.C.8.2	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 6.EE.9	None	2, 3, 6	Yes
6.C.9	Distinguish correct explanation/reasoning from that which is flawed, and – if there is a flaw in the argument – present corrected reasoning. (For example, some flawed 'student' reasoning is presented and the task is to correct and improve it.) Content Scope: Knowledge and skills articulated in 5.NBT, 5.MD.C	Tasks may have scaffolding if necessary in order to yield a degree of difficulty appropriate to Grade 6.	3, 6	Yes

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Evidence Statement Key	Evidence Statement Text	Clarifications	MP	Calculator
6.D.1	Solve multi-step contextual word problem with degree of difficulty appropriate to Grade 6, requiring application of knowledge and skills articulated in the Evidence Statements on the PBA (excludes Reasoning Evidence Statements).	Tasks may have scaffolding if necessary in order to yield a degree of difficulty appropriate to Grade 6.	4, 1, 2, 5, 7	Yes
6.D.2	Solve multi-step contextual problems with degree of difficulty appropriate to Grade 6, requiring application of knowledge and skills articulated in 5.NBT.B, 5.NF, 5.MD and 5.G.A	Tasks may have scaffolding if necessary in order to yield a degree of difficulty appropriate to Grade 6.	4, 1, 2, 5, 7	Yes
6.D.3	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 5.NBT.B, 5.MD	Tasks may have scaffolding if necessary in order to yield a degree of difficulty appropriate to Grade 6.	4, 1, 2, 5, 7	Yes