Grade 8 PBA/MYA

Evidence Statement Key	Evidence Statement Text	Clarifications	MP	Calculator
8.EE.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example,* $3^2 \times 3^{-5} = \frac{1}{3^3} = \frac{1}{27}$.	i) Tasks do not have a context. ii) Tasks center on the properties and equivalence, not on simplification. For example, a task might ask a student to classify expressions according to whether or not they are equivalent to a given expression. iii) 50% of expressions should involve one property iv) 30% of expressions should involve two properties v) 20% of expressions should involve three properties vi) Tasks should involve a single common base	7	No
8.EE.3	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example estimate the population of the United States as* 3×10^8 *and the population of the world as* 7×10^9*, and determine that the world population is more than 20 times larger.*	None	4	No
8.EE.4-1	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used.	i) Tasks have "thin context" or no context. ii) Rules or conventions for significant figures are not assessed. iii) 20% of tasks involve both decimal and scientific notation, e.g., write $120 + 3 \times 10^4$ in scientific notation.	6, 7, 8	No
8.EE.4-2	Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.	i) Task have "thin context". ii) The testing interface can provide students with a calculation aid of the specified kind for these tasks. iii) Tasks may require students to recognize 3.7E-2 (or 3.7e-2) from technology as 3.7 x 10^{-2}	6, 7, 8	Yes
8.EE.5-1	Graph proportional relationships, interpreting the unit rate as the slope of the graph.	i) Pool should contain tasks with and without context. ii) The testing interface can provide students with a calculation aid of the specified kind for these tasks.	1, 5	Yes
8.EE.5-2	Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has a greater speed.*	i) Pool should contain tasks with and without context. ii) 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
8.EE.7.b	Solve linear equations in one variable. b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	i) Tasks do not have a context.	6, 7	No
8.EE.8a	Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.	i) Tasks do not have a context.	2, 5, 6, 7	No
8.F.1-1	Understand that a function is a rule that assigns to each input exactly one output.	i) Tasks do not involve the coordinate plane or the "vertical line test." ii) Tasks do not require knowledge of the concepts or terms domain and range. iii) 20% of functions in tasks are non-numerical, e.g., the input could be a person and the output could be his or her month of birth.	2	No
8.F.1-2	[Understand that] the graph of a function is the set of ordered pairs consisting of an input and the corresponding output.	i) Functions are limited to those with inputs and outputs in the real numbers. ii) Tasks do not require knowledge of the concepts or terms domain and range. iii) 80% of tasks require students to graph functions in the coordinate plane or read inputs and outputs from the graph of a function in the coordinate plane. iv) 20% of tasks require students to tell whether a set of points in the plane represents a function.	2, 5	No
8.G.1a	Verify experimentally the properties of rotations, reflections, and translations: a. Lines are taken to lines, and line segments to line segments of the same length.	i) Tasks do not have a context.	3, 5, 8	No
8.G.1b	Verify experimentally the properties of rotations, reflections, and translations: b. Angles are taken to angles of the same measure.	i) Tasks do not have a context.	3, 5, 8	No

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Evidence Statement Key	Evidence Statement Text	Clarifications	MP	Calculator
8.G.2	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.	i)Tasks do not have a context. ii)Tasks do not reference similarity (this relationship will be assessed in 8.C.3.2) iii)Tasks should not focus on coordinate Geometry Tasks should elicit student understanding of the connection between congruence and transformations i.e., tasks may provide two congruent figures and require the description of a sequence of transformations that exhibits the congruence or tasks may require students to identify whether two figures are congruent using a sequence of transformations.	2, 7	No
8.G.3	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.	i)Tasks have “thin context” or no context ii)Tasks require the use of coordinates in the coordinate plane iii)For items involving dilations, tasks must state the center of dilation.	2, 3, 5	No
8.G.4	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.	i) Tasks do not have a context. ii) Tasks do not reference congruence (this relationship will be assessed in 8.C.3.2) iii) Tasks should not focus on coordinate Geometry iv) Tasks should elicit student understanding of the connection between similarity and transformations i.e., tasks may provide two similar figures and require the description of a sequence of transformations that exhibits the similarity or tasks may require students to identify whether two figures are similar using a sequence of transformations. v) Tasks do not require students to indicate a specified scale factor. vi) Similarity should not be obtained through the proportionality of corresponding sides.	2. 7	No

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Evidence Statement Key	Evidence Statement Text	Clarifications	MP	Calculator
8.C.1.1	Base reasoning on the principle that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane. Content Scope: Knowledge and skills articulated in 8.EE.6	i) Note especially the portion of 8.EE.6 after the semicolon.	2, 3, 7, 8	Yes
8.C.1.2	Base reasoning on the principle that the graph of an equation is two variables is the set of all its solutions plotted in the coordinate plane. Content Scope: Knowledge and skills articulated in 8.EE.8a	None	2, 3, 5, 6, 7	Yes
8.C.2	Given an equation or system of equations, present the solution steps as a logical argument that concludes with the set of solutions (if any). Content Scope: Knowledge and skills articulated in 8.EE.7a, 8.EE.7b, 8.EE.8b	None	3, 6	Yes

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Evidence Statement Key	Evidence Statement Text	Clarifications	MP	Calculator
8.C.3.1	Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures. Content Scope: Knowledge and skills articulated in 8.F.3-2	i) Note especially the portion of 8.F.3 after the semicolon. Tasks require students to prove that a given function is linear or nonlinear.	3, 6	Yes
8.C.3.2	Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures. Content Scope: Knowledge and skills articulated in 8.G.2, 8.G.4	None	3, 5, 6	Yes
8.C.3.3	Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures. Content Scope: Knowledge and skills articulated in 8.G.5	None	3, 5, 6	Yes
8.C.4.1	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 8.EE.8c	i) See ITN Appendix F, section A, "Illustrations of innovative task characteristics," sub-section 6, "Expressing mathematics," sub-section "Illustrative tasks that require students to express mathematical reasoning," the problem of the two shepherds.	1, 2, 3, 6, 7	Yes
8.C.5.1	Apply geometric reasoning in a coordinate setting, and/or use coordinates to draw geometric conclusions. Content Scope: Knowledge and skills articulated in 8.EE.6	i) Note especially the portion of 8.EE.6 before the semicolon.	2, 3, 5	Yes
8.C.5.2	Apply geometric reasoning in a coordinate setting, and/or use coordinates to draw geometric conclusions. Content Scope: Knowledge and skills articulated in 8.G.2, 8.G.4	None	2, 3, 5	Yes
8.C.5.3	Apply geometric reasoning in a coordinate setting, and/or use coordinates to draw geometric conclusions. Content Scope: Knowledge and skills articulated in 8.G.B	None	2, 3, 5	Yes
8.C.6	Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures. Content Scope: Knowledge and skills articulated in 7.RP.A, 7.NS.A, 7.EE.A	Tasks may have scaffolding if necessary in order to yield a degree of difficulty appropriate to Grade 8.	3, 6	Yes

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Evidence Statement Key	Evidence Statement Text	Clarifications	MP	Calculator
8.D.1	Solve multi-step contextual word problems with degree of difficulty appropriate to Grade 8, 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 8.	4, 1, 2, 5, 7	Yes
8.D.2	Solve multi-step contextual problems with degree of difficulty appropriate to Grade 8, requiring application of knowledge and skills articulated in 7.RP.A, 7.NS.3, 7.EE, 7.G, and 7.SP.B	Task may have scaffolding if necessary in order to yield a degree of difficulty appropriate to Grade 8.	4, 1, 2, 5, 7	Yes
8.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 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 8.	4, 1, 2, 5, 7	Yes
8.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 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 8.	4, 1, 2, 5, 7	Yes