Released Test Answer and Alignment Document

Mathematics – Grade 5

Performance Based Assessment

The following pages include the answer key for all machine-scored items, followed by the rubrics for the hand-scored items.

- The rubrics show sample student responses. Other valid methods for solving the problem can earn full credit unless a specific method is required by the item.
- In items where the scores are awarded for full and partial credit, the definition of partial credit will be confirmed during range-finding (reviewing sets of real student work).
- If students make a computation error, they can still earn points for reasoning or modeling.

Item Number	Answer Key	Evidence Statement Key/Content Scope
1.	D	5.NF.1-1
2.	$1\frac{3}{8}$ or equivalent fraction or mixed number	5.NF.4b-1
3.	B	5.MD.4
4.	÷ 10 OR × 1/10	5.NBT.1
5.	B, C	5.NBT.3b
6.	D	5.NF.4a-2
7.	Part A: D Part B: C	5.NF.2-1
8.	Part A: B, C, E Part B: A, E	5.NBT.Int.1
9.	Part A: B Part B: B	5.NF.3-2

10.	Part A: see rubric Part B: see rubric Part C: see rubric	5.C.6
11.	See rubric	5.C.7-3
12.	See rubric	5.C.5-3
13.	Part A: see rubric Part B: see rubric Part C: see rubric	5.C.7-4
14.	Part A: see rubric Part B: see rubric Part C: see rubric	5.D.1
15.	See rubric	5.D.1
16.	Part A: see rubric Part B: see rubric	5.D.2

#10 Part A	
Score	**Description**
1	Student response includes the following element. • **Computation component** = 1 point o Machine Scorable: 33
0	Student response is incorrect or irrelevant.

#10 Part B	
Score	**Description**
1	Student response includes the following element. • **Computation component** = 1 point o Machine Scorable: 18
0	Student response is incorrect or irrelevant.

#10 Part C	
Score	**Description**
2	Student response includes the following 2 elements. • **Reasoning component** = 1 point o Correct explanation and work shown • **Computation component =** 1 point o Correct answer, 51 cubic centimeters Sample Student Response: I added the volume of each box to find the total volume. 33 + 18 = 51 cubic centimeters
1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant.

#11 Rubric	
Score	**Description**
3	Student response includes each of the following 3 elements. • **Reasoning component** = 2 points o Identification of Leah's mistake o Correct work shown for adding $\frac{2}{3} + \frac{1}{2} + \frac{5}{12}$ • **Computation component =** 1 point o Correct value of $\frac{2}{3} + \frac{1}{2} + \frac{5}{12}$, $\frac{19}{12}$ or equivalent Sample Student Response: Leah used the wrong numerators. To add fractions with different denominators, you have to find the common denominator. Then you convert each fraction to an equivalent fraction using the common denominator. Then you add the numerators together and put the result as the numerator. $\frac{2}{3} + \frac{1}{2} + \frac{5}{12}$ $= \frac{8}{12} + \frac{6}{12} + \frac{5}{12}$ $= \frac{8+6+5}{12}$ $= \frac{19}{12}$
2	Student response includes 2 of the 3 elements.
1	Student response includes 1 of the 3 elements.
0	Student response is incorrect or irrelevant.

#12 Rubric	
Score	**Description**
3	Student response includes each of the following 3 elements. • **Reasoning component** = 2 points o Correct label for point A, $\frac{1}{2}$ hour or equivalent o Correct explanation of how to use the number line to solve the problem • **Computation component =** 1 point o Correct fraction of an hour spent per chore, $\frac{1}{10}$ or equivalent Sample Student Response: Point A should have the label $\frac{1}{2}$ hour. The number line is divided from 0 to $\frac{1}{2}$ in 5 equal sections because there are 5 chores. It would take 10 of these sections to divide the number line from 0 to 1. Each section represents the time she can spend on one chore. So she can spend $\frac{1}{10}$ of an hour on each chore.
2	Student response includes 2 of the above elements.
1	Student response includes 1 of the above elements.
0	The response is incorrect or irrelevant.

#13 Part A	
Score	**Description**
1	Student response includes the following element. • **Computation** = 1 point o The student writes 670,503 in expanded form. Sample Student Response: 600,000 + 70,000 + 500 + 3
0	The response is incorrect or irrelevant.

#13 Part B	
Score	**Description**
1	Student response includes the following element. • **Reasoning** = 1 point o The student shows or explains that you can write 8,523 in expanded form using 15 hundreds. Sample Student Response: 7 thousands + 15 hundreds + 2 tens + 3 ones = 8,523 Note: A variety of explanations are valid; credit should be given as long as it is clear that the student understands that in order to write the number using 15 hundreds, 1 thousand needs to be taken away.
0	The response is incorrect or irrelevant.

#13 Part C	
Score	**Description**
2	Student response includes the following 2 elements. • **Reasoning =** 2 points o The student shows or explains that 6 hundred thousands, 80 ten thousands, 7 thousands, 5 hundreds, and 9 tens does not represent 6,807,590. o The student shows a correct way to represent 6,807,590 using 80 ten thousands. Sample Student Response: 6 hundred thousands and 80 ten thousands would be 1,400,000, so it does not represent 6,807,590

	I can write 6,807,590 as 6 millions + 80 ten thousands + 7 thousands + 5 hundreds + 9 tens, which uses 80 ten thousands. Notes: o A variety of explanations are valid, as long as it is clear that the student gives a reasonable explanation or shows mathematically that 6 hundred thousands, 80 ten thousands, 7 thousands, 5 hundreds, and 9 tens does not represent 6,807,590. o The student may opt to show other place values non-traditionally; as long as the representation is equal to 6,807,590, credit should be given.
1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant.

	#14 Part A
Score	**Description**
1	Student response includes the following element. • **Modeling component** = 1 point o Correct expression for the cost of the bracelet Sample Student Response: 0.05 x 25 + 0.45 x 4 Note: Any valid expression can receive credit.
0	Student response is incorrect or irrelevant.

#14 Part B	
Score	**Description**
1	Student response includes the following element. • **Modeling component =** 1 point o Correct expression for the cost of the necklaces Sample Student Response: (0.05 × 48 + 0.45 × 1) × 2 Note: Any valid expression can receive credit.
0	Student response is incorrect or irrelevant.

#14 Part C	
Score	**Description**
1	Student response includes the following element. • **Computation component =** 1 point o Correct amount of money Katie had left after purchasing her supplies Sample Student Response: $31.25
0	Student response is incorrect or irrelevant.

#15 Rubric	
Score	**Description**
3	Student response includes the following 3 elements. • **Modeling component** = 2 points o Correct explanation of how to use the model to find the size of each section of the garden. o Correct use of common denominators to write an equation to find the difference between the two sections of the garden. • **Computation component** = 1 point o The student finds how many square yards larger the pea section is than the carrot section. Sample Student Response: Since there are 16 squares in the first half of the model and 3 are shaded, this means that the area of the carrot section is $\frac{3}{16}$ square yard. Since there are 4 squares in the second half of the model and 1 is shaded, this means that the area of the pea section is $\frac{1}{4}$ square yard. $\frac{4}{16}-\frac{3}{16}=\frac{1}{16}$ $\frac{1}{16}$ square yard Notes: o A variety of explanations are possible. As long as the explanation shows a clear understanding of using the model to find the size of each section, credit should be awarded. o A variety of equations are possible. As long as the equation can be used to represent the problem, credit should be awarded. o If a student uses the model for peas and divides it into sixteenths in order to use the common denominator, the student should be awarded both modeling points since the modeling for two steps was completed in one step.
2	Student response includes 2 of the 3 elements.
1	Student response includes 1 of the 3 elements.
0	Student response is incorrect or irrelevant.

#16 Part A	
Score	**Description**
3	Student response includes the following 3 elements. • **Computation component** = 1 point o Correct total cost of the items Maria bought, $52 • **Modeling component =** 2 points o The student shows all of the steps in finding the total cost. Sample Student Response: $52 The cost for each item is: Paper: 12 x $1 = $12 Wood: 4 x $3 = $12 String: 14 x $2 = $28 Total: $12 + $12 + $28 = $52 Notes: • Multiplication does not need to be shown as equations. • If a multiplication error occurs, the computation component is not correct. If all three multiplications are wrong, the point comes off the computation component, not from the modeling component. If the student shows three multiplication problems with correct factors, credit can be given for 1 modeling point, even though all three may have computation errors. • Addition does not need to be shown as an equation. • If an addition error occurs, the computation component is not correct, but the student can still receive credit for 1 modeling point if the correct addends are used in the model. A single equation can be shown for both modeling and computation parts, such as: 12 x $1 + 4 x $3 + 14 x $2 = $52. However, the answer must have context in terms of money. If no dollar sign appears with the final answer, then no computation point can be given.
2	Student response includes 2 of the 3 elements.
1	Student response includes 1 of the 3 elements.
0	Student response is incorrect or irrelevant.

#16 Part B	
Score	**Description**
3	Student response includes the following 3 elements. • **Computation component** = 2 points o Correct amount of paper, wood, and string needed for the 4 kites o Correct total cost for the 4 kites • **Modeling component =** 1 point o The student shows all of the steps in finding the answers. Sample Student Response: 48 square feet of paper, 16 feet of wood, 56 yards of string $208 Amount of Paper: 12 x 4 = 48 Amount of Wood: 4 x 4 = 16 Amount of String: 14 x 4 = 56 Cost of Paper: 48 x 1 = 48 Cost of Wood: 16 x 3 = 48 Cost of String: 56 x 2 = 112 48 + 48 + 112 = 208 Or any other valid process. Note: A correctly computed total cost in Part B that is based on an incorrect cost in Part A should receive credit.
2	Student response includes 2 of the 3 elements.
1	Student response includes 1 of the 3 elements.
0	Student response is incorrect or irrelevant.