Released Test Answer and Alignment Document

Mathematics – Grade 5

Spring 2016

Item Number	Answer Key	Evidence Statement Key
1.	C	5.G.1
2.	432	5.MD.5b
3.	C	5.NBT.1
4.	5	5.NBT.2-2
5.	703.1 703.46 seven hundred three and nine-tenths seven hundred three and one-hundredth $7 \times 100 + 2 \times 10 + 1 \times 1 + 0 \times \frac{1}{10} + 2 \times \frac{1}{100}$ $7 \times 100 + 0 \times 10 + 3 \times 1 + 0 \times \frac{1}{10} + 1 \times \frac{1}{100} + 8 \times \frac{1}{1000}$	5.NBT.3b
6.	D, E	5.NBT.3a
7.	$62 \times 8{,}198 =$ 508,276	5.NBT.5
8.	$0.5 \times 1.24 =$ 0.62	5.NBT.7-3

9.	$\frac{1}{8} + \frac{5}{6} = \frac{3}{24} + \frac{20}{24}$ or $\frac{1}{8} + \frac{5}{6} = \frac{6}{48} + \frac{40}{48}$	5.NF.1-1
10.	A, D, F	5.NF.1-1
11.	D	5.NF.3-1
12.	C	5.NF.6-1
13.	$6 \div \frac{1}{7} =$ 42	5.NF.7b
14.	C	5.OA.2-1
15.	D	5.MD.2-2
16.	Part A: 116,625 Part B: 57,994	5.Int.1
17.	Length of side *z*: 14 feet Volume of art piece: 1,088 square feet	5.MD.5c
18.	Part A: B Part B: 200	5.NBT.Int.1
19.	Part A: C Part B: C	5.NF.3-2
20.	Part A: See Rubric Part B: See Rubric	5.C.2-4
21.	Part A: See Rubric Part B: See Rubric	5.C.1-2
22.	See Rubric	5.C.7-2
23.	Part A: See Rubric Part B: See Rubric	5.C.7-4
24.	See Rubric	5.D.1
25.	Part A: $\frac{10}{3}$ or $3\frac{1}{3}$ or equivalent	5.D.2

	Part B: $\frac{30}{4}$ or equivalent fraction Part C: $\frac{11}{4}$ or equivalent fraction Part D: See Rubric	

#20 Rubric Part A	
Score	**Description**

2	Student response includes the following 2 elements.
	
	• **Reasoning component** = 1 point
	  ○ The student writes a multiplication equation that can be used to solve the problem.
	• **Reasoning component** = 1 point
	  ○ The student writes a division equation that can be used to solve the problem.
	
	Sample Student Response:
	
	$c \times 4 = \frac{1}{8}$
	
	$\frac{1}{8} \div 4 = c$
	
	Notes:
	• A variety of equations are possible. As long as the student uses a correct multiplication equation, credit should be given.
	• A variety of equations are possible. As long as the student uses a correct division equation, credit should be given.

1	Student response includes 1 of the above elements.
0	Student response is incorrect or irrelevant.

#20 Rubric Part B	
Score	**Description**

1	Student response includes the following 2 elements.
	
	• **Reasoning component** = 1 point
	  ○ The student uses the relationship between multiplication and division to explain why both equations work to solve the problem.
	• **Computation component** = 1 point
	  ○ The student provides the response of $\frac{1}{32}$
	
	Sample Student Response:
	
	"Both equations work because multiplication and division are opposites. The dividend of a division problem is the same as the product of its related multiplication problem. So, if $\frac{1}{8} \div 4 = \frac{1}{32}$, then $\frac{1}{32} \times 4 = \frac{1}{8}$."
	
	Notes:
	
	• A variety of explanations are valid. As long as the student uses the relationship between multiplication and division to explain why both equations work, credit should be given.
	• If a computation mistake is made, credit cannot be given for computation, but credit should be given for a valid explanation of the relationship between multiplication and division.
	• It is not necessary to use terms such as *inverse relationship, dividend, product, quotient, factor,* etc. as long as it is clear the student understands the concept.

1	Student response includes 1 of the above elements.
0	Student response is incorrect or irrelevant.

#21 Rubric Part A	
Score	**Description**
1	Student response includes the following element. • **Reasoning component** = 1 point ○ The student uses an understanding of the commutative property to explain why the strategy can be used to find the sum. Sample Student Response: "Yes, it will work because the student added the same numbers but in a different order. It doesn't matter which order you add the numbers as long as you add all of the same numbers." **Notes:** • A variety of explanations are possible. As long as the student shows an understanding of why the rearranged numbers can be used to solve the problem, credit should be given. • The student does not need to use the terms like *commutative property* or *associative property*; as long as it is clear the student understands the concept, credit should be given.
0	Student response is incorrect or irrelevant.

#21 Rubric Part B	
Score	**Description**

2	Student response includes the following 2 elements.
	
	• **Reasoning component** = 1 point
	  ○ The student indicates that using the standard algorithm is another way to solve the problem.
	• **Computation component** = 1 point
	  ○ The student provides the response of 238.
	
	Sample Student Response:
	
	"To solve the problem, you can align the numbers vertically, lining them up by place value. You can then add the numbers vertically, hundredths first, tenths next, then ones, and then tens, regrouping when needed. The sum of the numbers is 238."
	
	Notes:
	• A variety of strategies are possible for finding the sum. As long as the student is able to correctly explain how he or she arrived at the sum, credit should be given.
	• It is not necessary to use terms like standard algorithm or vertically; as long as it is clear the student understands the concept, credit should be given.

1	Student response includes 1 of the above elements.
0	Student response is incorrect or irrelevant.

#22 Rubric	
Score	**Description**
3	Student response includes the following 3 elements. **Reasoning point** = 1 ○ The student explains the error in the reasoning. **Reasoning point** = 1 ○ The student explains how to correct the error in the reasoning. **Computation point** = 1 ○ The student provides the response of $\frac{3}{16}$ gallon. Sample Student Response: "The student subtracted both the numerator and denominator. You only subtract the numerator after changing to a common denominator." "To fix the error, convert $\frac{3}{8}$ to $\frac{6}{16}$ so both fractions have a common denominator. Then subtract the numerators and leave the denominator the same. The soup left after giving soup to the office is $\frac{3}{16}$." **Notes:** • A variety of explanations are possible. As long as it is clear that the student explains the error in reasoning and how to correct the error in reasoning, credit should be given. • If a computation mistake is made, credit cannot be given for computation but can be given for a valid explanation.
2	Student response includes 2 of the above elements.
1	Student response includes 1 of the above elements.
0	Student response is incorrect or irrelevant.

#23 Rubric Part A	
Score	**Description**
1	Student response includes the following element. • **Reasoning component** = 1 point ○ The student explains a part of the reasoning that was correct Sample Student Response: "The student knows you need to regroup to get enough ones to subtract. He also knew you couldn't regroup from 0 tens." AND/OR "The student knows you subtract ones from ones, tens from tens, hundreds from hundreds, and thousands from thousands." **Notes:** • A variety of explanations are possible. • As long as the student explains what is correct in the reasoning, credit should be given.
0	Student response is incorrect or irrelevant.

#23 Rubric Part B	
Score	**Description**

3	Student response includes the following 3 elements.
	
	• **Reasoning component** = 1 point
	  ○ The student explains the error in the reasoning.
	• **Reasoning component** = 1 point
	  ○ The student explains how to correct the error.
	• **Computation component** = 1 point
	  ○ The student provides the response of 3194.
	
	Sample Student Response:
	
	"The student regrouped the 1 hundred as 10 ones when it is really 10 tens."
	
	"You need to move the 1 hundred to the tens place first so the 0 tens become 10 tens. Then you can take 1 ten and change it to 10 ones. So 13 ones – 9 ones = 4 ones, 9 tens – 0 tens = 9 tens, 3 hundreds – 2 hundreds = 1 hundred, and 6 thousands – 3 thousands = 3 thousands, so the answer is 3,194."
	
	Notes:
	• A variety of explanations are possible. As long as the student explains the error in the reasoning and how to correct the error in the reasoning, credit should be given.
	• If an error is made in computation, credit cannot be given for computation but can be given for a correct explanation.

2	Student response includes 2 of the above elements.
1	Student response includes 1 of the above elements.
0	Student response is incorrect or irrelevant.

#24 Rubric	
Score	**Description**
3	Student response includes the following 3 elements. **Computation point** = 1 ○ The student provides the correct number of beans for 5 servings of soup, $\frac{3}{8}$ **Computation point** = 1 ○ The student provides the correct number of beans Dana needs to make 5 servings, $\frac{1}{16}$ **Modeling point*** = 1 ○ Correct work or explanation shown Sample Student Response: "Dana needs $\frac{3}{4} \times \frac{1}{2} = \frac{3}{8}$ pound of beans to make 5 servings of soup." "In the two containers she has $\frac{1}{16} + \frac{1}{4} = \frac{1}{16} + \frac{1}{4}\left(\frac{4}{4}\right) = \frac{1}{16} + \frac{4}{16} = \frac{5}{16}$ pound of beans. She needs $\frac{3}{8} - \frac{5}{16} = \left(\frac{2}{2}\right)\frac{3}{8} - \frac{5}{16} = \frac{6}{16} - \frac{5}{16} = \frac{1}{16}$ pound more beans to make 5 servings."
2	Student response includes 2 of the above elements.
1	Student response includes 1 of the above elements.
0	Student response is incorrect or irrelevant.

***This item does not follow the normal rule that there must be 50% or more points for modeling.**

#25 Rubric Part A (Machine Scored)	
Score	**Description**
1	**Computation point** = 1 Student response is $\frac{10}{3}$ or $3\frac{1}{3}$.
0	Student response is incorrect or irrelevant.

#25 Rubric Part B (Machine Scored)	
Score	**Description**
1	**Computation point** = 1 Student response is $\frac{30}{4}$ or equivalent fraction. $\frac{3}{4} \times 2 = \frac{6}{4}$ $\frac{6}{4} \times 5 = \frac{30}{4}$
0	Student response is incorrect or irrelevant.

#25 Rubric Part C (Machine Scored)	
Score	**Description**
1	**Computation point** = 1 Student response is $\frac{11}{4}$ or equivalent fraction. $\frac{3}{4} \times 3 = \frac{9}{4}$. $\frac{1}{4} \times 2 = \frac{2}{4}$. Therefore; $\frac{9}{4} + \frac{2}{4} = \frac{11}{4}$.
0	Student response is incorrect or irrelevant.

#25 Rubric Part D	
Score	**Description**
3	Student response includes the following 4 elements. **Modeling points** = 3 ○ Student provides the correct miles Kayla ran, $2\frac{1}{4}$ ○ Student provides the correct miles Jim ran, 2 ○ Student provides the correct miles Maria ran, 2 ○ Correct statement of who ran the farthest (Kayla) Sample Student Response: Kayla ran in 4 days: $\frac{1}{4} + \frac{3}{4} + \frac{2}{4} + \frac{3}{4} = \frac{9}{4} = 2\frac{1}{4}$. Jim ran in 4 days: $\frac{3}{4} + \frac{1}{2} + \frac{1}{2} + \frac{1}{4} = \frac{3+2+2+1}{4} = \frac{8}{4} = 2$. Maria ran in 4 days: $\frac{3}{8} + \frac{1}{8} + \frac{5}{8} + \frac{7}{8} = \frac{16}{8} = 2$. Kayla ran the most miles in the 4 days.
2	Student response includes 2 or 3 of the above elements.
1	Student response includes 1 of the above elements.
0	Student response is incorrect or irrelevant.