

Mathematics – Grade 4
Practice Test Answer and Alignment Document
Pencil-and-Paper ABO

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.

Unit 1

Item Number	Answer Key	Evidence Statement Key/Content Scope
1.	12	4.MD.3
2.	21,894	4.NBT.5-1
3.	Part A: 20 Part B: see rubric Part C: see rubric	4.D.2/3.MD.3
4.	A, B, D	4.OA.4-1
5.	A, D	4.NF.2-1
6.	B, E	4.NBT.2
7.	Part A: 5 Part B: see rubric	4.C.5-5/4.NF.7
8.	Part A: A Part B: D	4.NF.3d

9.	58	4.NBT.6-1
10.	A	4.NBT.1
11.	See rubric	4.D.1/4.OA.2
12.	331	4.NBT.4-2

Unit 2

Item Number	Answer Key	Evidence Statement Key/Content Scope
13.	C	4.NF.4c
14.	Part A: B, D, E Part B: C	4.NF.A.Int.1
15.	A	4.MD.6
16.	A, C, E	4.NF.7
17.	D	4.OA.2
18.	Part A: D Part B: see rubric	4.D.1/4.NF.3d and 4.NF.4c
19.	Part A: D Part B: A	4.OA.3-2
20.	B, E	4.OA.1-2
21.	C	4.OA.4-3
22.	Part A: D Part B: 29	4.MD.7

Unit 3

Item Number	Answer Key	Evidence Statement Key/Content Scope
23.	24	4.OA.3-2
24.	Part A: see rubric Part B: see rubric	4.C.5-6

25.	C	4.MD.5
26.	A, E	4.NF.3a
27.	Part A: see rubric Part B: see rubric	4.C.5-1/4.OA.3
28.	48	4.MD.1
29.	840	4.Int.2
30.	Part A: D Part B: C	4.NF.Int.1
31.	B, D, E	4.G.2

Rubrics start on the next page.

Unit 1 #3 Rubric Part A	
Score	Description
1	Computation component: Student enters 20.
0	Student response is incorrect or irrelevant.
Unit 1 #3 Rubric Part B	
Score	Description
2	<p>Student response includes each of the following 2 elements.</p> <ul style="list-style-type: none"> • Computation component: 5 students • Modeling component: Student explains how to use the bar graph to determine how many more students have 1 pet than 3 pets. <p>Sample Student Response:</p> <p>I looked at the height of the bar to find the number of students with one pet and saw it was 35. Then I looked at the height of the bar to find the number of students with 3 pets and saw it was 30. I subtracted 30 from 35 and got 5. So, there are 5 more students who have 1 pet than 3 pets.</p> <p>Note: A variety of explanations are valid, as long as it is clear that the student understands how to use the bar graph to answer the question.</p>
1	Student response includes 1 of the 2 elements. If a computation mistake is made, credit cannot be given for the computation component, but 1 point can be given for stating a correct process in the explanation.
0	Student response is incorrect or irrelevant.
Unit 1 #3 Rubric Part C	
Score	Description
3	<p>Student response includes each of the following 3 elements.</p> <ul style="list-style-type: none"> • Computation component: 201 • Modeling component: Student explains how to use the bar graph to solve the problem. • Modeling component: Students shows work using equations. <p>Sample Student Response:</p> <p>I read the height of each bar to know how many students had 1 pet,</p>

	<p>2 pets, 3 pets, or 4 pets. I determined how many pets each bar shows by multiplying the number of students by the number of pets for each bar. Adding the numbers of pets for all the bars gives the total.</p> <p>35 students have 1 pet $1 \times 35 = 35$ pets 20 students have 2 pets $2 \times 20 = 40$ pets 30 students have 3 pets $3 \times 30 = 90$ pets 9 students have 4 pets $4 \times 9 = 36$ pets</p> <p>$35 + 40 + 90 + 36 = 201$ total pets</p> <p>Note: A variety of explanations are valid as long as it is clear that the student understands how to use the bar graph to answer the question and shows work using equations.</p>
2	Student response includes 2 of the 3 elements. If a computation mistake is made, credit cannot be given for the computation component, but points can be given for modeling.
1	Student response includes 1 of the 3 elements.
0	Student response is incorrect or irrelevant.

Unit 1 #7 Rubric Part A

Score	Description
1	Computation component: Student enters 5.
0	Student response is incorrect or irrelevant.

Unit 1 #7 Rubric Part B

Score	Description
2	<p>Student response includes each of the following 2 elements.</p> <ul style="list-style-type: none"> • Reasoning component: Student identifies Christy's incorrect reasoning. • Reasoning component: Student gives a valid explanation of how to correct the reasoning and provides a correct comparison. <p>Sample Student Responses:</p> <p>Christy found the correct total distance of her runs, but her comparison is wrong. 0.5 is $\frac{5}{10}$ which equals $\frac{50}{100}$ so she should compare 47 to 50, not 5.</p>

	<p>50 is greater than 47, so $\frac{5}{10} > \frac{47}{100}$.</p> <p>OR</p> <p>Christy's distance $\frac{47}{100} = 0.47$ and Alex ran 0.5 mile, so she should compare 0.5 to 0.47. The 5 in tenths place in 0.5 has a greater value than the 4 in the tenths place in 0.47.</p> <p>Note: Other valid explanations are acceptable.</p>
1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant.

Unit 1 #11 Rubric

Score	Description
3	<p>Student response includes each of the following 3 elements.</p> <ul style="list-style-type: none"> • Computation component: Rico had 1276 more yards than Ed after the first three games. • Modeling component: Student shows work or explains how to determine the number of yards that Ed had and Rico had after the 3 games. • Modeling component: Student shows work or explains how to determine how many more yards Rico had than Ed. <p>Sample Student Response:</p> <p>I found that Ed had 638 yards by adding $157 + 308 + 172$. Rico had 3 times the number of yards as Ed, so $638 \times 3 = 1914$. To find how many more yards Rico had than Ed, I subtracted 638 from 1914 and got 1276.</p> <p>Note: A variety of explanations are valid as long as the student uses a mathematically correct approach to solving the problem.</p>
2	Student response includes 2 of the 3 elements. If a computation mistake is made, credit cannot be given for the computation component, but points can be given for modeling.
1	Student response includes 1 of the 3 elements.
0	Student response is incorrect or irrelevant.

Unit 2 #18 Rubric Part A

Score	Description
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1	Computation component: Student selects D.
0	Student response is incorrect or irrelevant.
Unit 2 #18 Rubric Part B	
Score	Description
2	<p>Student response includes the following element.</p> <ul style="list-style-type: none"> Modeling component: Valid work or explanation with an answer of 9 is provided. <p>Sample Student Response:</p> <p>First I added to find the total number of cups of yogurt and ice.</p> $\frac{4}{8} + 1 = 1\frac{4}{8}$ <p>Then I multiplied by 6 drinks.</p> $6 \times \frac{12}{8} = \frac{72}{8} = 9$ <p>She uses a total of 9 cups of yogurt and ice.</p> <p>Note: Other explanations are valid. For example, the student might multiply $\frac{4}{8}$ by 6 and 1 by 6 and then find the sum of the products.</p>
1	Student response provides a correct answer of 9; however, an insufficient explanation or insufficient work is shown to support the answer. Or, a valid explanation or valid work is shown; however, a computation error is made which results in an incorrect answer.
0	Student response is incorrect or irrelevant.

Unit 3 #24 Rubric Part A	
Score	Description
3	<p>Student response includes each of the following 3 elements.</p> <ul style="list-style-type: none"> Reasoning component: Explanation of why Shaun's reasoning is incorrect Reasoning component: Explanation on how to use the number line to determine the fraction that Shaun's point represents Computation component: $\frac{3}{6}$ <p>Sample Student Response:</p> <p>Shaun's reasoning is incorrect because he drew 5 lines between 0 and 1 and said that this divided the line into fifths. This actually</p>

	divides the line into sixths because there are six equal sections between 0 and 1. Shaun's point represents the fraction $\frac{3}{6}$ because each mark on the number line is $\frac{1}{6}$. So, the third mark is the point $\frac{3}{6}$.
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.
Unit 3 #24 Rubric Part B	
Score	Description
1	<p>Student response includes the following element.</p> <ul style="list-style-type: none"> Reasoning component: Describes a process to find a fraction equivalent to $\frac{2}{3}$ <p>Sample Student Response:</p> <p>I can find a fraction equivalent to $\frac{2}{3}$ by multiplying the numerator (2) and denominator (3) by the same number.</p> <p>Note: Other strategies are valid such as showing that another fraction is the same position on a number line.</p>
0	Student response is incorrect or irrelevant.

Unit 3 #27 Rubric Part A	
Score	Description
1	<p>Reasoning component: The student explains the error made. For example: "Jian rounded the quotient up, but that won't work because the remainder of 3 means there are only 3 ounces of honey left, and that isn't enough to fill the last jar."</p> <p>Note: A variety of explanations are possible. As long as the explanation shows a clear understanding of the error made, credit should be awarded.</p>
0	Student response is incorrect or irrelevant.
Unit 3 #27 Rubric Part B	
Score	Description
2	Student response includes each of the following 2 elements.

	<ul style="list-style-type: none"> • Computation component: 551 (6-ounce) jars and \$4,408 • Reasoning component: The student explains the steps needed to solve the problem, including correctly interpreting the remainder. For example: "I would divide 3,311 by 6 and get a quotient of 551, with a remainder of 5. This means they could completely fill 551 jars, but the leftover honey wouldn't be enough to fill another jar. I multiplied $551 \times \\$8$ and got \$4,408. "
1	Student response includes 1 of the 2 elements. If a computation mistake is made, credit cannot be given for the computation component, but points can be given for valid reasoning.
0	Student response is incorrect or irrelevant.