Key: B
Measured CCLS: 4.NF.1

Commentary: This question measures 4.NF.1 by asking the student to understand the principle that a fraction \( \frac{a}{b} \) is equivalent to fraction \( \frac{n \times a}{n \times b} \) by using visual fraction models, with attention to how the number and size of parts differ even though the two fractions themselves are the same size, and use this principle to recognize and generate equivalent fractions.

Extended Rationale

Answer Choice A: This response may reflect a lack of understanding of how to interpret the numerator and denominator in a fraction. The student may have seen that the numerator was 1 and chose the figure that had 1 part shaded, without understanding how to interpret the denominator. The student who selects this response may not understand how to interpret fractions or how to recognize and generate equivalent fractions.

Answer Choice B: This is the correct representation of a fraction equivalent to \( \frac{1}{2} \). The student may have understood that an equivalent fraction can be generated by multiplying a fraction by \( \frac{n}{n} \), or the student may have recognized the figure that showed \( \frac{1}{2} \) of it shaded. The student who selects this response understands how to recognize and generate equivalent fractions using a visual model.

Answer Choice C: This response may reflect a lack of understanding of how to generate an equivalent fraction. The student may have incorrectly assumed that an equivalent fraction is generated when the same number is added to, rather than multiplied by, the numerator and denominator. The student who selects this response may not understand how to recognize and generate equivalent fractions.

Answer Choice D: This response may reflect a lack of understanding of how to generate an equivalent fraction. The student may have misinterpreted the denominator as the number of unshaded parts and then doubled the numerator and the denominator. The student who selects this response may not understand how to recognize and generate equivalent fractions.
Answer choices A, C, and D are plausible but incorrect. They represent common student errors made when attempting to understand and generate equivalent fractions using the principle that fraction \( \frac{a}{b} \) is equivalent to fraction \( \frac{n \times a}{n \times b} \) by using visual fraction models.
Carter shaded the two same-sized models below to represent the fractions $\frac{2}{3}$ and $\frac{8}{12}$.

![Fractions Models](image)

Carter believed that $\frac{2}{3}$ is equivalent to $\frac{8}{12}$. Why is he correct or incorrect?

**A** He is incorrect because the numerator and denominator are different in $\frac{2}{3}$ and $\frac{8}{12}$.

**B** He is incorrect because the numerator and denominator in $\frac{8}{12}$ are greater than in $\frac{2}{3}$.

**C** He is correct because adding the same number to the numerator and denominator in $\frac{2}{3}$ equals $\frac{8}{12}$.

**D** He is correct because multiplying the numerator and denominator in $\frac{2}{3}$ by the same number equals $\frac{8}{12}$.

**Key: D**
**Measured CCLS: 4.NF.1**

**Commentary:** This question measures 4.NF.1 by asking the student to understand the principle that fraction $\frac{a}{b}$ is equivalent to fraction $(n \times a) / (n \times b)$ by using visual fraction models, with attention to how the number and size of parts differ even though the two fractions themselves are the same size and use this principle to recognize and generate equivalent fractions.

**Extended Rationale**

**Answer Choice A:** "He is incorrect because the numerator and denominator are different in $\frac{2}{3}$ and $\frac{8}{12}$." This response is incorrect and may reflect a lack of understanding of how to interpret the numerator and denominator in a fraction and how to generate equivalent fractions. The student may have thought that equivalent fractions must have the same numerator and denominator. The student who selects this response may not understand how to interpret fractions or how to recognize and generate equivalent fractions.

**Answer Choice B:** "He is incorrect because the numerator and denominator in $\frac{8}{12}$ are greater than in $\frac{2}{3}$." This response is incorrect and may reflect a lack of understanding of how to interpret the numerator and denominator in a fraction and how to generate equivalent fractions. The student may have thought that
fractions can be compared by comparing the numerators and denominators separately. The student who
selects this response may not understand how to interpret fractions or how to recognize and generate
equivalent fractions.

**Answer Choice C:** "He is correct because adding the same number to the numerator and denominator in \( \frac{2}{3} \)
equals \( \frac{8}{12} \)." This response is incorrect and may reflect a lack of understanding of how to generate an
equivalent fraction. The student may have incorrectly assumed that the same number \( n / n \) could be added
to, rather than multiplied by, the numerator and denominator to generate an equivalent fraction. The student
who selects this response may not understand how to generate equivalent fractions using the principle that
fraction \( a / b \) is equivalent to fraction \( \frac{n \times a}{n \times b} \).

**Answer Choice D:** "He is correct because multiplying the numerator and denominator in \( \frac{2}{3} \) by the same
number equals \( \frac{8}{12} \)." This is the correct response that identifies the fractions as equivalent, along with an
appropriate justification. The student may have understood that an equivalent fraction can be generated by
multiplying a fraction by 1 \( n / n \). The student who selects this response understands how to generate
equivalent fraction using the principle that fraction \( a / b \) is equivalent to fraction \( \frac{n \times a}{n \times b} \).

Answer choices A, B, and C are plausible but incorrect. They represent common student errors made when
using the principle that fraction \( a / b \) is equivalent to fraction \( \frac{n \times a}{n \times b} \) to recognize and generate
equivalent fractions.
The model below is shaded to represent a fraction.

Which fraction is equivalent to the one represented by the model?

A \[\frac{1}{6}\]

B \[\frac{1}{3}\]

C \[\frac{2}{4}\]

D \[\frac{2}{3}\]

Key: B

Measured CCLS: 4.NF.1

Commentary: This question measures 4.NF.1 by asking the student to apply understanding that a fraction \(\frac{a}{b}\) is equivalent to a fraction \((n \times a) / (n \times b)\) by using visual fraction models. The student must determine a fraction that is equivalent to the fraction shown in the model, \(\frac{2}{6}\).

Extended Rationale

Answer Choice A: \[\frac{1}{6}\]; This response may reflect a lack of understanding of how to generate an equivalent fraction. The student may have only divided the numerator by 2 instead of dividing both the numerator and denominator by 2. The student who selects this response may not understand how to generate equivalent fractions using the fact that \(\frac{a}{b}\) is equivalent to a fraction \((n \times a) / (n \times b)\).

Answer Choice B: \[\frac{1}{3}\]; This is the correct fraction that is equivalent to \(\frac{2}{6}\). The student may have understood that a fraction can be multiplied by 1 \((n / n)\) to determine an equivalent fraction. The student who selects this response may understand how to generate equivalent fractions using the fact that \(\frac{a}{b}\) is equivalent to a fraction \((n \times a) / (n \times b)\).

Answer Choice C: \[\frac{2}{4}\]; This response may reflect a lack of understanding of how to interpret a visual model of a fraction. The student may have seen that in the model, 2 parts are shaded and 4 parts are unshaded, so thought the fraction modeled was \(\frac{2}{4}\). The student did not find an equivalent fraction. The student who selects
this response may not understand how to interpret fractions or how to use the rule $a / b$ is equivalent to a fraction $(n \times a) / (n \times b)$ by using visual fraction models.

**Answer Choice D:** "$\frac{2}{3}$"; This response may reflect an error in understanding how to interpret a visual model of a fraction. The student may have only considered the top row of the model and determined the fraction to be $\frac{2}{3}$. The student did not try to find a fraction equivalent to $\frac{2}{3}$. The student who selects this response may not understand how to interpret a visual fraction model or how to use the rule $a / b$ is equivalent to a fraction $(n \times a) / (n \times b)$.

Answer choices A, C, and D are plausible but incorrect. They represent common student errors made when using the rule $a / b$ is equivalent to a fraction $(n \times a) / (n \times b)$.
The figure below is divided into equal sections.

Which expression represents the fraction of the figure that is shaded?

A \( \frac{1}{10} + \frac{2}{10} + \frac{3}{10} \)

B \( \frac{1}{10} + \frac{1}{10} + \frac{2}{10} \)

C \( \frac{3}{10} + \frac{3}{10} + \frac{4}{10} \)

D \( \frac{4}{10} + \frac{4}{10} + \frac{4}{10} \)

Key: B
Measured CCLS: 4.NF.3.b

Commentary: This question measures 4.NF.3.b by asking the student to decompose a fraction into a sum of fractions with the same denominator.

Extended Rationale

Answer Choice A: “\( \frac{1}{10} + \frac{2}{10} + \frac{3}{10} \)”; This response may reflect an error in understanding which part of the visual model represents the fraction. The student may have found the fraction that represents the unshaded part of the circle and decomposed it into three fractions with a sum of \( \frac{6}{10} \). The student who selects this response may not understand how to determine which part of the model represents the fraction.

Answer Choice B: “\( \frac{1}{10} + \frac{1}{10} + \frac{2}{10} \)”; This is the correct response that shows that \( \frac{4}{10} \) can be decomposed into \( \frac{1}{10} + \frac{1}{10} + \frac{2}{10} \). The student may have understood that \( \frac{4}{10} \) can be decomposed into several fractions that have a total sum of \( \frac{6}{10} \). The student who selects this response understands how to decompose a fraction into a sum of fractions with the same denominator.

Answer Choice C: “\( \frac{3}{10} + \frac{3}{10} + \frac{4}{10} \)”; This response may reflect an error in using the model to determine the represented fraction. The student may have thought the model represented \( \frac{10}{10} \) so decomposed \( \frac{10}{10} \) into
fractions that have a total sum of \( \frac{10}{10} \). The student who selects this response may not understand how to use the model to identify a fraction.

**Answer Choice D:** “\( \frac{4}{10} + \frac{4}{10} + \frac{4}{10} \)”; This response may reflect a lack of understanding of how to decompose a fraction. The student may have correctly identified the fraction represented in the model but did not understand how to decompose \( \frac{4}{10} \), so repeated \( \frac{4}{10} \). The student who selects this response may not understand how to decompose a fraction into a sum of fractions with the same denominator.

Answer choices A, C, and D are plausible but incorrect. They represent common student errors made when decomposing a fraction into a sum of fractions with the same denominator.
What is \(8\frac{3}{5} + 8\frac{1}{5}\)?

A \(\frac{4}{10}\)

B \(\frac{4}{5}\)

C \(\frac{4}{10}\)

D \(\frac{4}{5}\)

**Key:** D  
**Measured CCLS:** 4.NF.3.c

**Commentary:** This question measures 4.NF.3.c by asking the student to add mixed numbers with like denominators.

**Extended Rationale**

**Answer Choice A:** "\(8\frac{4}{10}\); This response reflects a lack of understanding of adding fractions and adding mixed numbers. The student may have added the fractions incorrectly by adding the numerators and denominators, \(\frac{3}{5} + \frac{1}{5} = \frac{4}{10}\), without also adding the whole numbers. The student who selects this response may not understand how to add fractions or mixed numbers.

**Answer Choice B:** "\(8\frac{4}{5}\); This response reflects a lack of understanding of adding mixed numbers. The student may have understood how to add the fractions \(\frac{3}{5}\) and \(\frac{1}{5}\) but did not understand that the whole numbers needed to be added as well. The student who selects this response may not understand how to add mixed numbers.

**Answer Choice C:** "\(16\frac{4}{10}\); This response may reflect a lack of understanding of adding fractions. The student may have correctly added the whole numbers 8 and 8 to get 16, but incorrectly added the fractions by adding the numerators and denominators, \(\frac{3}{5} + \frac{1}{5} = \frac{4}{10}\). The student who selects this response may not understand how to add fractions.

**Answer Choice D:** "\(16\frac{4}{5}\); This is the correct result when \(8\frac{1}{5}\) is added to \(8\frac{3}{5}\). The student may have calculated \(\frac{1}{5} + \frac{3}{5} = \frac{4}{5}\) and \(8 + 8 = 16\). The student who selects this response understands how to add mixed numbers.

Answer choices A, B, and C are plausible but incorrect. They represent common student errors made when adding mixed numbers with like denominators.
Which fraction below can be placed in the box to make the statement true?

\[
\boxed{} > \frac{3}{4}
\]

A \(\frac{2}{6}\)

B \(\frac{5}{12}\)

C \(\frac{1}{2}\)

D \(\frac{5}{6}\)

**Key:** D  
**Measured CCLS:** 4.NF.2

**Commentary:** This question measures 4.NF.2 by asking the student to compare two fractions with different numerators and different denominators. In this case, the student must identify a fraction that is greater than the given fraction, \(\frac{3}{4}\).

**Extended Rationale**

**Answer Choice A:** \(\frac{2}{6}\); This response may reflect an error in comparing fractions, possibly as a result of incorrectly using the denominator to determine whether a fraction is greater or less than another. Specifically, the student may have decided that \(\frac{2}{6} > \frac{3}{4}\) because 6 is a greater number than 4. The student who selects this response may not understand how to compare two fractions with different numerators and different denominators.

**Answer Choice B:** \(\frac{5}{12}\); This response may reflect an error in comparing fractions, possibly as a result of incorrectly reasoning with the numerator and the denominator for comparison purposes. Specifically, the student may have decided that \(\frac{5}{12} > \frac{3}{4}\) because 5 is greater than 3 and 12 is greater than 4. The student who selects this response may not understand how to compare two fractions with different numerators and different denominators.

**Answer Choice C:** \(\frac{1}{2}\); This response may reflect an incomplete understanding of comparing fractions. The student may have decided that \(\frac{1}{2} > \frac{3}{4}\) because halves are greater-sized parts than fourths by examining the denominators, without including the numerators in the comparison. The student who selects this response may not understand how to compare two fractions with different numerators and different denominators.

**Answer Choice D:** \(\frac{5}{6}\); This represents the correct fraction that is greater than \(\frac{3}{4}\). The student may have found a common denominator to compare the fractions or may have compared the fractions to benchmark fractions. The student who selects this response understands how to compare two fractions with different numerators and denominators.
numerators and different denominators by creating common denominators or numerators, or by comparing to a benchmark fraction.

\[ \frac{10}{12} > \frac{9}{12} \text{ or } \frac{5}{6} \text{ is closer to } 1 \text{ than } \frac{3}{4}. \]

Answer choices A, B, and C are plausible but incorrect. They represent common student errors made when comparing two fractions with different numerators and different denominators.
Ellen has several bags with different masses of trail mix, as shown in the table below.

### BAGS OF TRAIL MIX

<table>
<thead>
<tr>
<th>Mass of Bag (pounds)</th>
<th>Number of Bags</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 1/2</td>
<td>1</td>
</tr>
<tr>
<td>1 1/2</td>
<td>3</td>
</tr>
<tr>
<td>1/2</td>
<td>4</td>
</tr>
</tbody>
</table>

Which line plot represents the data in the table?

- **A**
  - Mass (pounds)
  - X X X X

- **B**
  - Mass (pounds)
  - X X X

- **C**
  - Mass (pounds)
  - X X X

- **D**
  - Mass (pounds)
  - X X X
Key: C  
Measured CCLS: 4.MD.4  

Commentary: This question measures 4.MD.4 by asking the student to recognize a line plot that displays a data set of measurements in fractions of a unit.

Extended Rationale

**Answer Choice A:** This response may reflect an error in transferring the data from the table to the line plot. The student may have thought that the table showed the data in the order it should appear on the line plot. The student who selects this response may not understand how to recognize a line plot that displays a data set.

**Answer Choice B:** This response may reflect a lack of understanding of how to display data on a line plot. The student may not have understood that the line plot should have a clearly marked scale on the horizontal axis and that it must show the number of bags for each mass. The student who selects this response may not understand how to recognize a line plot that displays a data set of measurements in fractions of a unit.

**Answer Choice C:** This is the correct line plot for the data. The student may have understood that each X on the line plot stood for one bag of trail mix, so if the table shows 4 bags have a mass of $\frac{1}{2}$ pound, then there should be 4 Xs above the $\frac{1}{2}$ tick mark on the line plot. If the table shows 3 bags have a mass of $1\frac{1}{2}$ pounds, then there should be 3 Xs above the $1\frac{1}{2}$ tick mark on the line plot. If the table shows 1 bag has a mass of $2\frac{1}{2}$ pounds, then there should be 1 X above the $2\frac{1}{2}$ tick mark on the line plot. The student who selects this understands how to recognize a line plot that displays a data set of measurements in fractions of a unit.

**Answer Choice D:** This response may reflect a lack of understanding of how to display data on a line plot. The student may not have understood that the line plot must show the number of bags for each mass. The student who selects this response may not understand how to recognize a line plot that displays a data set of measurements in fractions of a unit.

Answer choices A, B, and D are plausible but incorrect. They represent common student errors made when recognizing a line plot that displays a data set of measurements in fractions of a unit.
Maria, Leah, and Jonas ran these distances on Saturday:

- Maria ran $\frac{5}{6}$ mile.
- Leah ran $\frac{2}{3}$ mile.
- Jonas ran $\frac{3}{4}$ mile.

Who ran the shortest distance?

*Show your work.*

*Answer* ________________

**Measured CCLS: 4.NF.2**

**Commentary:** This question measures 4.NF.2 because it assesses a student’s ability to compare fractions with different numerators and denominators.
**Extended Rationale:** This question asks the student to determine which of three students ran the shortest distance, given fractions of a mile. The student must include a set of computations or visual models to explain and justify each step in the process. As indicated in the rubric, student responses will be rated on whether they show sufficient work to indicate a thorough understanding of comparing fractions with different numerators and denominators. The determining factor in demonstrating a thorough understanding is using mathematically sound procedures to lead to a correct response.

The correct answer is Leah.

**Method 1:** Student finds a common denominator for 6, 3, and 4, then compares the fractions by comparing numerators.

\[ \frac{5}{6} = \frac{10}{12} \]
\[ \frac{2}{3} = \frac{8}{12} \]
\[ \frac{3}{4} = \frac{9}{12} \]

The least fraction is \( \frac{8}{12} \), which is the distance, in miles, Leah ran.

**Method 2:** Student may draw models showing equal-sized rectangles shaded to represent each fraction.

Student will show that a rectangle with \( \frac{2}{3} \) of the parts shaded is less than both a rectangle with \( \frac{5}{6} \) shaded or \( \frac{3}{4} \) shaded.
Score Point 2 (out of 2 points)
This response includes the correct solution (Leah) and demonstrates a thorough understanding of the mathematical concepts in the task. The shortest distance is determined by correctly converting the three fractions to equivalent fractions ($\frac{10}{12}$, $\frac{9}{12}$, $\frac{9}{12}$) with the least common denominator (12).
Maria, Leah, and Jonas ran these distances on Saturday:

- Maria ran $\frac{5}{6}$ mile.
- Leah ran $\frac{2}{3}$ mile.
- Jonas ran $\frac{3}{4}$ mile.

Who ran the shortest distance?

*Show your work.*

![Tape diagrams showing distances run by Maria, Leah, and Jonas]

**Answer**: Leah

*Score Point 2 (out of 2 points)*

This response includes the correct solution and demonstrates a thorough understanding of the mathematical concepts in the task. The three fractions are correctly represented by comparable tape diagrams visually showing $\frac{2}{3}$ as the smallest.
Score Point 1 (out of 2 points)
This response demonstrates only a partial understanding of the mathematical concepts in the task. The response contains an incorrect solution (Maria) but applies a mathematically appropriate process. The three fractions are correctly represented as pie charts for comparison. However, the incorrect solution is the result of comparing the unshaded rather than the shaded parts of each chart, thereby identifying the longest distance instead of the shortest.
Maria, Leah, and Jonas ran these distances on Saturday:

- Maria ran \(\frac{5}{6}\) mile. \(= \frac{10}{12}\)
- Leah ran \(\frac{2}{3}\) mile. \(= \frac{8}{12}\)
- Jonas ran \(\frac{3}{4}\) mile. \(= \frac{9}{12}\)

Who ran the shortest distance?

Show your work.

Maria \(\frac{5}{6} \times 2 = \frac{10}{12}\)
Leah \(\frac{2}{3} \times 4 = \frac{8}{12}\) \(<\) Shortest Distance
Jonas \(\frac{3}{4} \times 3 = \frac{9}{12}\)

\[\text{Leah ran the shortest distance}\]

Score Point 1 (out of 2 points)
This response demonstrates only a partial understanding of the mathematical concepts in the task. The three fractions are appropriately converted to equivalent fractions using the least common denominator (12) and the response contains a correct solution (Leah). However, instead of showing multiplication by 1, \(\frac{2}{2}\) for example, the work incorrectly shows multiplication by a whole number other than 1 (\(\frac{5}{6} \times 2 = \frac{10}{12}, \frac{2}{3} \times 4 = \frac{8}{12}, \frac{3}{4} \times 3 = \frac{9}{12}\)).
Maria, Leah, and Jonas ran these distances on Saturday:

- Maria ran \( \frac{5}{6} \) mile.
- Leah ran \( \frac{2}{3} \) mile.
- Jonas ran \( \frac{3}{4} \) mile.

Who ran the shortest distance?

Show your work.

\[
\text{Leah ran } \frac{2}{3} \text{ mile.}
\]

She ran \( \text{shortest} \) distance.

Answer

Score Point 0 (out of 2 points)

This response does not demonstrate even a limited understanding of the mathematical concepts embodied in the task. The response includes the correct solution; however, the required work is missing.
Maria, Leah, and Jonas ran these distances on Saturday:

- Maria ran $\frac{5}{6}$ mile.
- Leah ran $\frac{2}{3}$ mile.
- Jonas ran $\frac{3}{4}$ mile.

Who ran the shortest distance?

*Show your work.*

\[
\frac{2}{3} - \frac{3}{4} - \frac{5}{6} = \frac{8}{12} - \frac{9}{12} - \frac{10}{12} = \frac{-1}{12}
\]

\[
\frac{2+1}{6-2} = \frac{3}{4}
\]

*Answer* Leah

**Score Point 0 (out of 2 points)**

This response does not demonstrate even a limited understanding of the mathematical concepts embodied in the task. This response contains a correct solution obtained using an obviously incorrect procedure. Each of the denominators is arbitrarily changed to 4 in order to compare the numerators.
Marta picked \( \frac{4}{8} \) cup of blueberries. Her sister picked \( \frac{3}{8} \) cup of blueberries. They used \( \frac{6}{8} \) cup of all the blueberries they picked to make muffins. What was the amount, in cups, left of the blueberries they picked?

*Show your work.*

*Answer* \( \underline{\text{\phantom{00}}} \) cup(s)
**Measured CCLS: 4.NF.3.d**

**Commentary:** This question measures 4.NF.3.d because it assesses a student’s ability to solve a word problem involving addition and subtraction of fractions referring to the same whole and having like denominators. In addition, this question can be solved by using visual models or equations.

**Extended Rationale:** This question asks the student to find the amount, in cups, of blueberries that Marta and her sister have left after using some of the blueberries they picked to make muffins. The student must include a set of computations or visual models to explain and justify each step in the process. As indicated in the rubric, student responses will be rated on whether they show sufficient work to indicate a thorough understanding of adding and subtracting fractions referring to the same whole and having like denominators. The determining factor in demonstrating a thorough understanding is using mathematically sound procedures to lead to a correct response.

The correct amount, in cups, of blueberries left after Marta and her sister use some of the blueberries they picked to make muffins may be determined by using the following methods:

The problem may be solved by adding and then subtracting fractions:

**Method 1:**

\[
\frac{4}{8} + \frac{3}{8} = \frac{7}{8}
\]

\[
\frac{7}{8} - \frac{6}{8} = \frac{1}{8}
\]

The problem may also be solved using a visual model:

**Method 2:** Student may draw a model showing \(\frac{4}{8} + \frac{3}{8} = \frac{7}{8}\) and a model showing \(\frac{7}{8} - \frac{6}{8} = \frac{1}{8}\).
Finally, the problem may also be solved using an equation, with a symbol (such as the letter \( n \)) to represent the unknown:

Method 3:

\[
\left( \frac{4}{8} + \frac{3}{8} \right) - \frac{6}{8} = n
\]

\[
\frac{7}{8} - \frac{6}{8} = n
\]

\[n = \frac{1}{8}\]
Marta picked $\frac{4}{8}$ cup of blueberries. Her sister picked $\frac{3}{8}$ cup of blueberries. They used $\frac{5}{8}$ cup of all the blueberries they picked to make muffins. What was the amount, in cups, left of the blueberries they picked?

**Show your work.**

\[
\frac{4}{8} + \frac{3}{8} = \frac{7}{8}
\]

\[
\frac{7}{8} - \frac{6}{8} = \frac{1}{8}
\]

**Answer** $\frac{1}{8}$ cup(s)

**Score Point 2 (out of 2 points)**
This response includes the correct solution ($\frac{1}{8}$) and demonstrates a thorough understanding of the mathematical concepts in the task. The task is completed correctly, using mathematically sound procedures ($\frac{4}{8} + \frac{3}{8} = \frac{7}{8}$; $\frac{7}{8} - \frac{6}{8} = \frac{1}{8}$).
Marta picked $\frac{4}{8}$ cup of blueberries. Her sister picked $\frac{3}{8}$ cup of blueberries. They used $\frac{6}{8}$ cup of all the blueberries they picked to make muffins. What was the amount, in cups, left of the blueberries they picked?

**Show your work.**

\[
\begin{align*}
\frac{7}{8} - \frac{6}{8} &= \frac{1}{8} \\
\end{align*}
\]

**Answer** $\frac{1}{8}$ cup(s)

**Score Point 2 (out of 2 points)**

This response includes the correct solution and demonstrates a thorough understanding of the mathematical concepts in the task. The response contains the correct process of subtracting the cups used from the cups picked ($\frac{7}{8} - \frac{6}{8} = \frac{1}{8}$). Not showing the addition to find the total amount of blueberries picked, $\frac{4}{8} + \frac{3}{8}$, does not detract from the demonstration of a thorough understanding.
Marta picked $\frac{4}{8}$ cup of blueberries. Her sister picked $\frac{3}{8}$ cup of blueberries.

They used $\frac{6}{8}$ cup of all the blueberries they picked to make muffins. What was the amount, in cups, left of the blueberries they picked?

Show your work.

\[
\frac{4}{8} + \frac{3}{8} = \frac{7}{8}
\]

\[
\frac{7}{8} - \frac{1}{8} = \frac{6}{8}
\]

Answer $\frac{6}{8}$ cup(s)

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The response contains an incorrect solution ($\frac{6}{8}$) but applies a mathematically appropriate process. The response correctly adds the cups picked ($\frac{4}{8} + \frac{3}{8} = \frac{7}{8}$) and subtracts the cups remaining from the cups picked ($\frac{7}{8} - \frac{1}{8} = \frac{6}{8}$); however, the response records the cups used ($\frac{6}{8}$) as the solution to the problem instead of the cups remaining ($\frac{1}{8}$).
Marta picked $\frac{4}{8}$ cup of blueberries. Her sister picked $\frac{3}{8}$ cup of blueberries.
They used $\frac{6}{8}$ cup of all the blueberries they picked to make muffins. What was
the amount, in cups, left of the blueberries they picked?

*Show your work.*

\[
\frac{4}{8} + \frac{3}{8} = \frac{7}{8}
\]

*Answer* $\frac{7}{8}$ cup(s)

**Score Point 1 (out of 2 points)**
This response demonstrates only a partial understanding of the mathematical concepts in the task. The response correctly addresses only some elements of the task. The cups picked are correctly added ($\frac{4}{8} + \frac{3}{8} = \frac{7}{8}$); however, the cups left are not determined and an incorrect solution is provided ($\frac{7}{8}$).
Marta picked $\frac{4}{8}$ cup of blueberries. Her sister picked $\frac{3}{8}$ cup of blueberries. They used $\frac{6}{8}$ cup of all the blueberries they picked to make muffins. What was the amount, in cups, left of the blueberries they picked?

*Show your work.*

\[
\begin{align*}
4 & \quad \frac{4}{8} \\
- & \quad \frac{3}{8} \\
\hline
& \quad \frac{1}{8}
\end{align*}
\]

Answer $\frac{1}{8}$ cup(s)

**Score Point 0 (out of 2 points)**

This response does not demonstrate even a limited understanding of the mathematical concepts embodied in the task. The correct solution ($\frac{1}{8}$) is obtained using an incorrect procedure that subtracts, instead of adds, the amounts picked ($\frac{4}{8} - \frac{3}{8} = \frac{1}{8}$).
Marta picked $\frac{4}{8}$ cup of blueberries. Her sister picked $\frac{3}{8}$ cup of blueberries. They used $\frac{6}{8}$ cup of all the blueberries they picked to make muffins. What was the amount, in cups, left of the blueberries they picked?

*Show your work.*

\[
\frac{8}{8} - \frac{6}{8} = \frac{2}{8}
\]

Answer $\frac{2}{8}$ cup(s)

**Score Point 0 (out of 2 points)**

This response does not demonstrate even a limited understanding of the mathematical concepts embodied in the task. The calculations ($\frac{8}{8} - \frac{6}{8} = \frac{2}{8}$), while correct, are irrelevant to the question, and, as a result, the solution is incorrect.
# 2-Point Holistic Rubric

**Score Points:**

<table>
<thead>
<tr>
<th>Points</th>
<th>Description</th>
</tr>
</thead>
</table>
| 2 Points | A two-point response includes the correct solution to the question and demonstrates a thorough understanding of the mathematical concepts and/or procedures in the task. This response  
- indicates that the student has completed the task correctly, using mathematically sound procedures  
- contains sufficient work to demonstrate a thorough understanding of the mathematical concepts and/or procedures  
- may contain inconsequential errors that do not detract from the correct solution and the demonstration of a thorough understanding |
| 1 Point | A one-point response demonstrates only a partial understanding of the mathematical concepts and/or procedures in the task. This response  
- correctly addresses only some elements of the task  
- may contain an incorrect solution but applies a mathematically appropriate process  
- may contain the correct solution but required work is incomplete |
| 0 Points* | A zero-point response is incorrect, irrelevant, incoherent, or contains a correct solution obtained using an obviously incorrect procedure. Although some elements may contain correct mathematical procedures, holistically they are not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task. |

* Condition Code A is applied whenever a student who is present for a test session leaves an entire constructed-response question in that session **completely** blank (no response attempted).
### 3-Point Holistic Rubric

**Score Points:**

<table>
<thead>
<tr>
<th>3 Points</th>
<th>A three-point response includes the correct solution(s) to the question and demonstrates a thorough understanding of the mathematical concepts and/or procedures in the task.</th>
</tr>
</thead>
</table>
| This response | - indicates that the student has completed the task correctly, using mathematically sound procedures  
- contains sufficient work to demonstrate a thorough understanding of the mathematical concepts and/or procedures  
- may contain inconsequential errors that do not detract from the correct solution(s) and the demonstration of a thorough understanding |

<table>
<thead>
<tr>
<th>2 Points</th>
<th>A two-point response demonstrates a partial understanding of the mathematical concepts and/or procedures in the task.</th>
</tr>
</thead>
</table>
| This response | - appropriately addresses most, but not all aspects of the task using mathematically sound procedures  
- may contain an incorrect solution but provides sound procedures, reasoning, and/or explanations  
- may reflect some minor misunderstanding of the underlying mathematical concepts and/or procedures |

<table>
<thead>
<tr>
<th>1 Point</th>
<th>A one-point response demonstrates only a limited understanding of the mathematical concepts and/or procedures in the task.</th>
</tr>
</thead>
</table>
| This response | - may address some elements of the task correctly but reaches an inadequate solution and/or provides reasoning that is faulty or incomplete  
- exhibits multiple flaws related to misunderstanding of important aspects of the task, misuse of mathematical procedures, or faulty mathematical reasoning  
- reflects a lack of essential understanding of the underlying mathematical concepts  
- may contain the correct solution(s) but required work is limited |

| 0 Points* | A zero-point response is incorrect, irrelevant, incoherent, or contains a correct solution obtained using an obviously incorrect procedure. Although some elements may contain correct mathematical procedures, holistically they are not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task. |

* Condition Code A is applied whenever a student who is present for a test session leaves an entire constructed-response question in that session completely blank (no response attempted).
2014 2- and 3-Point Mathematics Scoring Policies

Below are the policies to be followed while scoring the mathematics tests for all grades:

1. If a student does the work in other than a designated “Show your work” area, that work should still be scored. (Additional paper is an allowable accommodation for a student with disabilities if indicated on the student’s Individual Education Program or Section 504 Accommodation Plan.)

2. If the question requires students to show their work, and the student shows appropriate work and clearly identifies a correct answer but fails to write that answer in the answer blank, the student should still receive full credit.

3. In questions that provide ruled lines for students to write an explanation of their work, mathematical work shown elsewhere on the page should be considered and scored.

4. If the student provides one legible response (and one response only), teachers should score the response, even if it has been crossed out.

5. If the student has written more than one response but has crossed some out, teachers should score only the response that has not been crossed out.

6. Trial-and-error responses are not subject to Scoring Policy #5 above, since crossing out is part of the trial-and-error process.

7. If a response shows repeated occurrences of the same conceptual error within a question, the student should not be penalized more than once.

8. In questions that require students to provide bar graphs,
   - in Grades 3 and 4 only, touching bars are acceptable
   - in Grades 3 and 4 only, space between bars does not need to be uniform
   - in all grades, widths of the bars must be consistent
   - in all grades, bars must be aligned with their labels
   - in all grades, scales must begin at 0, but the 0 does not need to be written

9. In questions requiring number sentences, the number sentences must be written horizontally.

10. In pictographs, the student is permitted to use a symbol other than the one in the key, provided that the symbol is used consistently in the pictograph; the student does not need to change the symbol in the key. The student may not, however, use multiple symbols within the chart, nor may the student change the value of the symbol in the key.

11. If students are not directed to show work, any work shown will not be scored. This applies to items that do not ask for any work and items that ask for work for one part and do not ask for work in another part.

12. Condition Code A is applied whenever a student who is present for a test session leaves an entire constructed-response question in that session completely blank (no response attempted). This is not to be confused with a score of zero wherein the student does respond to part or all of the question but that work results in a score of zero.