

SECURE MATERIAL - Reader Name: _____
Tennessee Comprehensive Assessment Program

TCAP/CRA

2014



4

Phase II

Movie Night Task

Anchor Set

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Part 2: Constructed Response Assessment

Movie Night Task

On Saturday evening, the Singleton and Lozano families watched movies together. They ordered four pizzas. Each pizza had eight slices. At the end of the evening, there were $\frac{9}{8}$ pizzas left.

- a. Use addition equations and models to show how you can decompose $\frac{9}{8}$ in two different ways.

	First Way	Second Way
Equation		
Model		

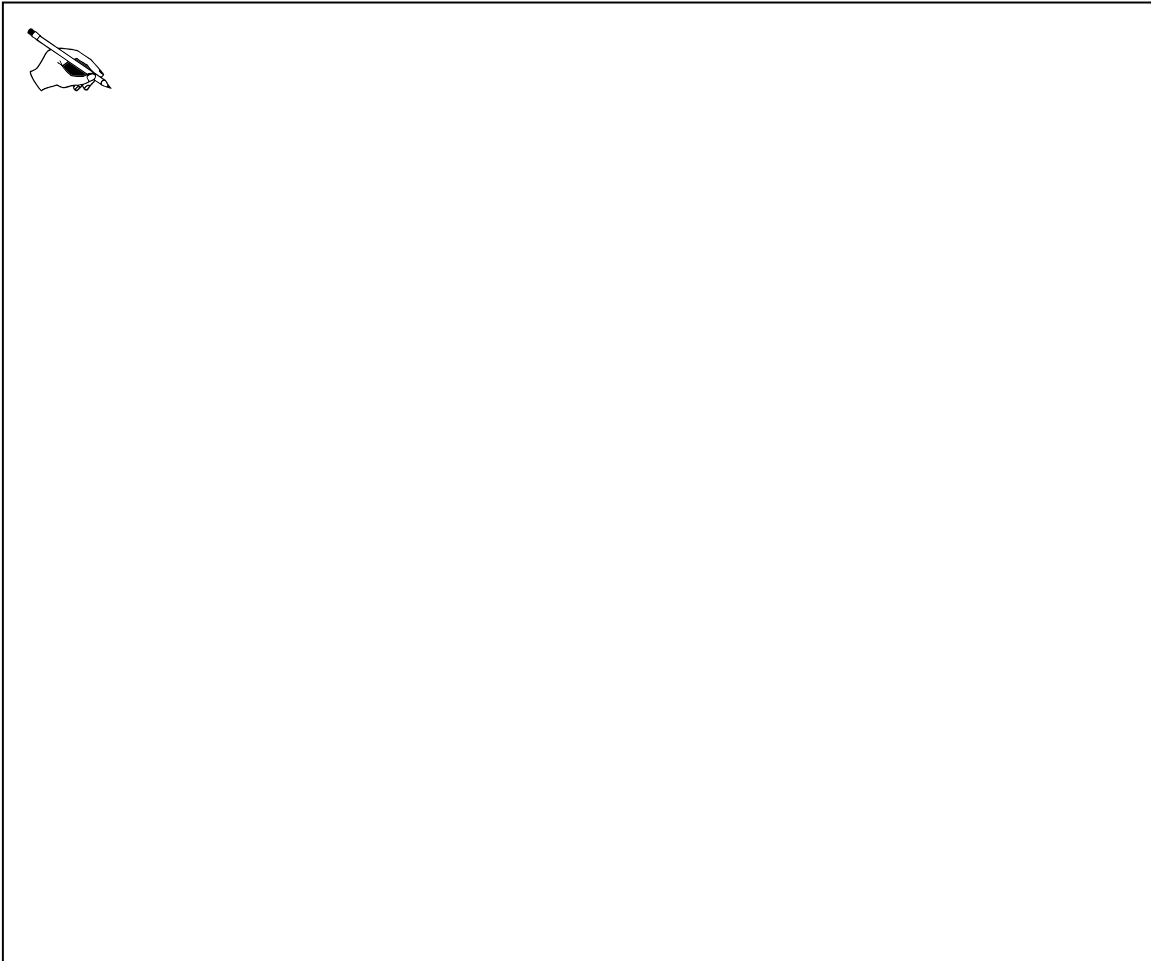


Part 2: Constructed Response Assessment

Movie Night Task

One of the pizzas ordered was cheese. By the end of the evening, the families had eaten $\frac{6}{8}$ of the cheese pizza.

- b. Use a model and an equation to show what fraction of the cheese pizza was left.



Scoring Guide

The CCSS for Mathematical Content (3 points)

4.NF.B.3a Provides one or more decompositions of $\frac{9}{8}$ into two or more addends. _____

(1 Point)

4.NF.B.3b Provides two different equations or expressions to show decomposition of $\frac{9}{8}$ into two or more addends. Commutative property is not covered by “different equations.” _____

(1 Point)

4.NF.B.3d Identifies that $\frac{1}{4}$ (or its equivalencies) of the pizza remains. _____

(1 Point)

The CCSS for Mathematical Practice (2 points)

MP4x Represents with accurate models (not equations) two different decompositions of $\frac{9}{8}$. _____

(1 Point)

(MP4: Model with mathematics.)

MP4z Uses a model and an equation to show how much of the cheese pizza is left. _____

(1 Point)

(MP4: Model with mathematics.)

TOTAL POINTS: 5

The CCSS for Mathematical Content Addressed In This Task

Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.

4.NF.B.3a Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.

4.NF.B.3b Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. *Examples:* $\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$; $\frac{3}{8} = \frac{1}{8} + \frac{2}{8}$; $2\frac{1}{8} = 1 + 1 + \frac{1}{8} = \frac{8}{8} + \frac{8}{8} + \frac{1}{8}$.

4.NF.B.3d Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.

The CCSS for Mathematical Practice*

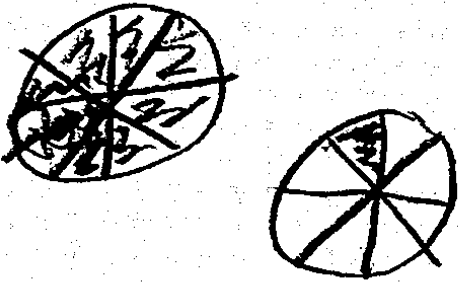
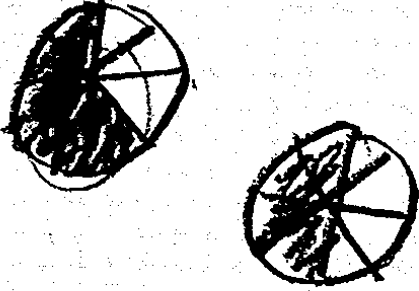
1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. **Model with mathematics.**
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

* Gray type indicates Mathematical Practices not addressed in this assessment.

Movie Night Task

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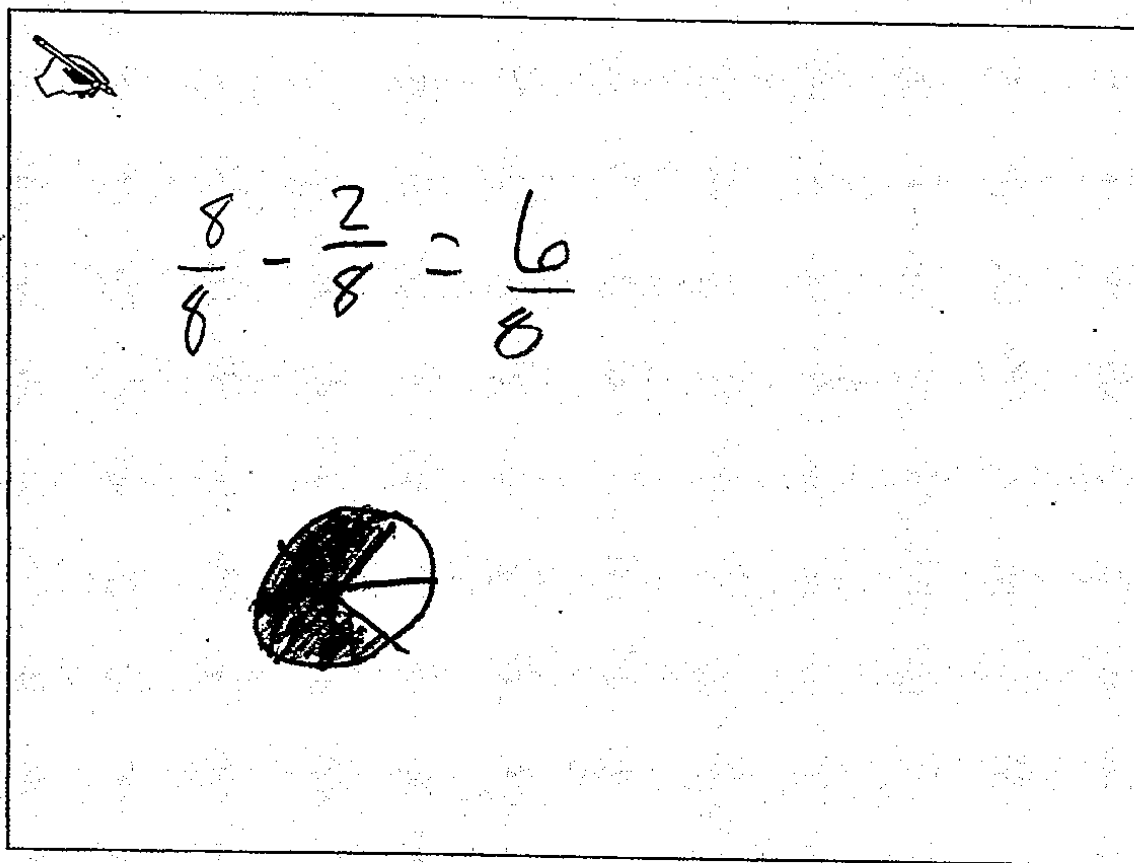
- a. Use addition equations and models to show how you can decompose $\frac{9}{8}$ in two different ways.

	First Way	Second Way
Equation	$\frac{8}{8} + \frac{1}{8} = \frac{9}{8}$	$\frac{5}{8} + \frac{4}{8} = \frac{9}{8}$
Model		

Movie Night Task

One of the pizzas ordered was cheese. By the end of the evening, the families had eaten $\frac{6}{8}$ of the cheese pizza.

- b. Use a model and an equation to show what fraction of the cheese pizza was left.



The diagram shows a hand-drawn pizza with 8 slices. Two slices are shaded to represent the fraction $\frac{2}{8}$. Above the pizza is the equation $\frac{8}{8} - \frac{2}{8} = \frac{6}{8}$. In the top left corner of the box, there is a small drawing of a hand holding a pizza slice.

Movie Night Task

Anchor 1 Litho 00134200146

Total Content Points: 3 (4.NF.B.3a, 4.NF.B.3b, 4.NF.B.3d)

Total Practice Points: 2 (MP4x, MP4z)

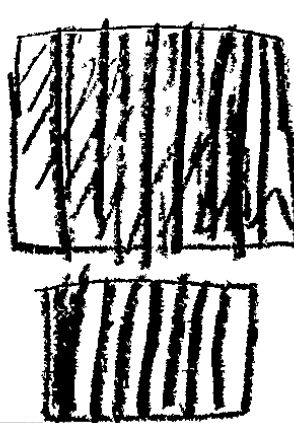
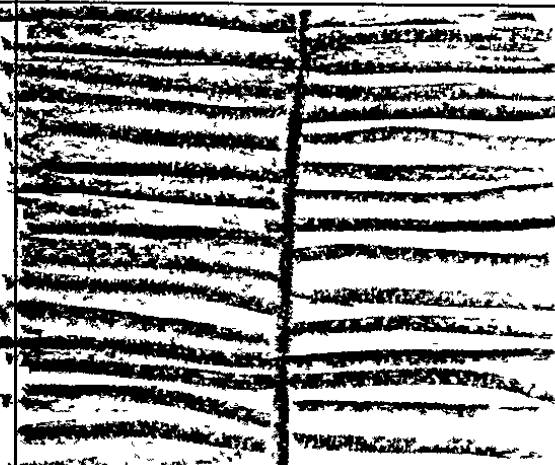
In Part A, the student provides at least one decomposition of $\frac{9}{8}$ into two or more addends— the equations $\frac{8}{8} + \frac{1}{8} = \frac{9}{8}$ and $\frac{5}{8} + \frac{4}{8} = \frac{9}{8}$ — and two visual models (4.NF.B.3a). The two equations also achieve credit for providing two different equations or expressions to show decomposition of $\frac{9}{8}$ into two or more addends (4.NF.B.3b). In Part B, the student uses the equation $\frac{8}{8} - \frac{2}{8} = \frac{6}{8}$ to identify $\frac{2}{8}$ as the fraction of the pizza that remains (4.NF.B.3d). The student represents two different decompositions of $\frac{9}{8}$ with accurate models in Part A (MP4x) and uses an accurate model and equation $\left(\frac{8}{8} - \frac{2}{8} = \frac{6}{8}\right)$ in Part B to show how much of the cheese pizza is left (MP4z).

Total Awarded Points: 5 out of 5

Movie Night Task

On Saturday evening, the Singleton and Lozano families watched movies together. They ordered four pizzas. Each pizza had eight slices. At the end of the evening, there were $\frac{9}{8}$ pizzas left.

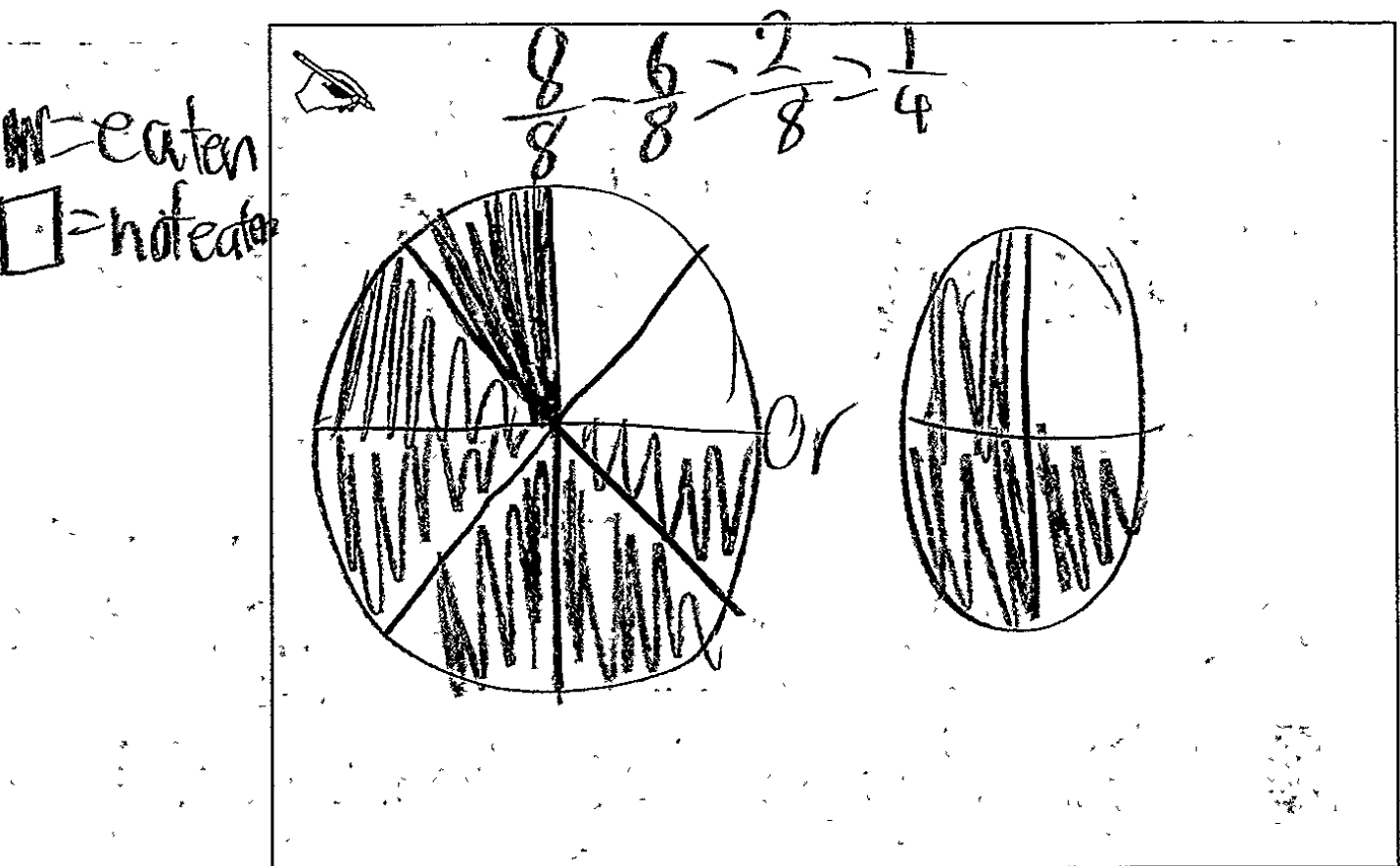
- a. Use addition equations and models to show how you can decompose $\frac{9}{8}$ in two different ways.

	First Way	Second Way
Equation	$\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$ $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$	$\frac{8}{8} + \frac{1}{8}$
Model		

Movie Night Task

One of the pizzas ordered was cheese. By the end of the evening, the families had eaten $\frac{6}{8}$ of the cheese pizza

- b. Use a model and an equation to show what fraction of the cheese pizza was left



Anchor 2

Litho 00454200113

Total Content Points: 3 (4.NF.B.3a, 4.NF.B.3b, 4.NF.B.3d)

Total Practice Points: 1 (MP4z)

In Part A, the student provides at least one decomposition of $\frac{9}{8}$ into two or more addends

$\left(\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} \text{ and } \frac{8}{8} + \frac{1}{8}\right)$. (Both visual models are incorrect and could not be

given credit for this point.) (4.NF.B.3a) The two expressions also achieve credit for providing two different equations or expressions to show decomposition of $\frac{9}{8}$ into two or more addends

(4.NF.B.3b). In Part B, the student uses the equation $\frac{8}{8} - \frac{6}{8} = \frac{2}{8} = \frac{1}{4}$ to identify $\frac{1}{4}$ as the

fraction of the pizza that remains (4.NF.B.3d). The student uses models in Part A that do not

accurately represent $\frac{9}{8}$ (no credit for MP4x). In Part B, the student uses an accurate model and

an equation to show how much of the cheese pizza is left (MP4z).


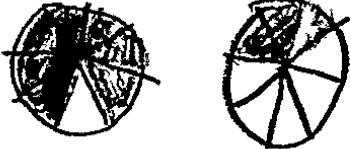
Total Awarded Points: 4 out of 5



Movie Night Task

On Saturday evening, the Singleton and Lozano families watched movies together. They ordered four pizzas. Each pizza had eight slices. At the end of the evening, there were $\frac{9}{8}$ pizzas left.

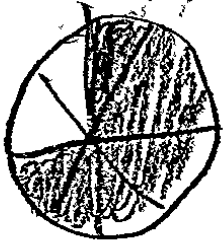
- a. Use addition equations and models to show how you can decompose $\frac{9}{8}$ in two different ways.

	First Way	Second Way
Equation	$\frac{8}{8} + \frac{1}{8} = \frac{9}{8}$	$\frac{7}{8} + \frac{2}{8} = \frac{9}{8}$
Model		

Movie Night Task

One of the pizzas ordered was cheese. By the end of the evening, the families had eaten $\frac{6}{8}$ of the cheese pizza.

- b Use a model and an equation to show what fraction of the cheese pizza was left.


$$\frac{6}{8} - \frac{6}{8} = \frac{2}{8}$$

$\frac{1}{4}$ of the pizza is left

Anchor 3

Litho 00504200110

Total Content Points: 3 (4.NF.B.3a, 4.NF.B.3b, 4.NF.B.3d)

Total Practice Points: 1 (MP4x)

In Part A, the student provides at least one decomposition of $\frac{9}{8}$ into two or more addends—the equations $\frac{8}{8} + \frac{1}{8} = \frac{9}{8}$ and $\frac{7}{8} + \frac{2}{8} = \frac{9}{8}$ —and both models (4.NF.B.3a). The two equations also achieve credit for providing two different equations or expressions to show decomposition of $\frac{9}{8}$ into two or more addends (4.NF.B.3b). In Part B, the student identifies that $\frac{1}{4}$ of the pizza remains (4.NF.B.3d). The student uses accurate models in Part A to represent two different decompositions of $\frac{9}{8}$ (MP4x). In Part B, the student uses a correct model, but provides an incorrect equation $\left(\frac{6}{8} - \frac{8}{8} = \frac{2}{8}\right)$ (no credit for MP4z).

Total Awarded Points: 4 out of 5

Movie Night Task

On Saturday evening, the Singleton and Lozano families watched movies together. They ordered four pizzas. Each pizza had eight slices. At the end of the evening, there were $\frac{9}{8}$ pizzas left.

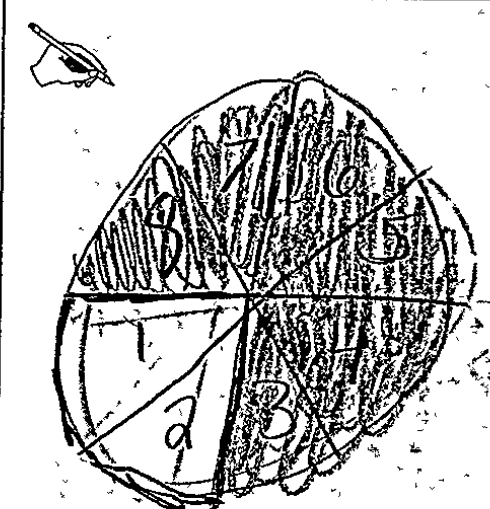
- a. Use addition equations and models to show how you can decompose $\frac{9}{8}$ in two different ways.

	First Way	Second Way
Equation	$\frac{8}{8} + \frac{1}{8} = \frac{9}{8}$	$\frac{3}{8} + \frac{5}{8} + \frac{1}{8} = \frac{9}{8}$
Model		

Movie Night Task

One of the pizzas ordered was cheese. By the end of the evening, the families had eaten $\frac{6}{8}$ of the cheese pizza.

- b. Use a model and an equation to show what fraction of the cheese pizza was left.


$$\frac{8}{8} - \frac{6}{8} = \frac{2}{8}$$

white pieces = left over

Anchor 4

Litho 00214200102

Total Content Points: 2 (4.NF.B.3a, 4.NF.B.3d)

Total Practice Points: 2 (MP4x, MP4z)

In Part A, the student provides at least one decomposition of $\frac{9}{8}$ into two or more addends—the equation $\frac{8}{8} + \frac{1}{8} = \frac{9}{8}$ —and both models (4.NF.B.3a). The student fails to provide two different equations or expressions to show decompositions of $\frac{9}{8}$ into two or more addends, because the second proposed equation, $\frac{3}{8} + \frac{5}{8} + \frac{1}{9} = \frac{9}{8}$, is incorrect (no credit for 4.NF.B.3b). In Part B, the student uses the equation $\frac{8}{8} - \frac{6}{8} = \frac{2}{8}$ to identify $\frac{2}{8}$ as the fraction of the pizza that remains (4.NF.B.3d). The student uses accurate models in Part A to represent two different decompositions of $\frac{9}{8}$ (MP4x). In Part B, the student uses a model and an equation to show how much of the cheese pizza is left (MP4z).

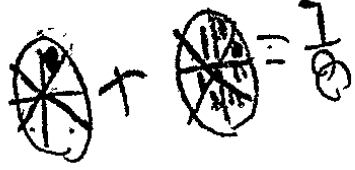
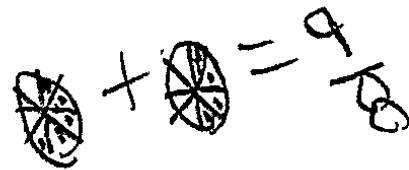
Total Awarded Points: 4 out of 5

A-5a

Movie Night Task

On Saturday evening, the Singleton and Lozano families watched movies together. They ordered four pizzas. Each pizza had eight slices. At the end of the evening, there were $\frac{9}{8}$ pizzas left.

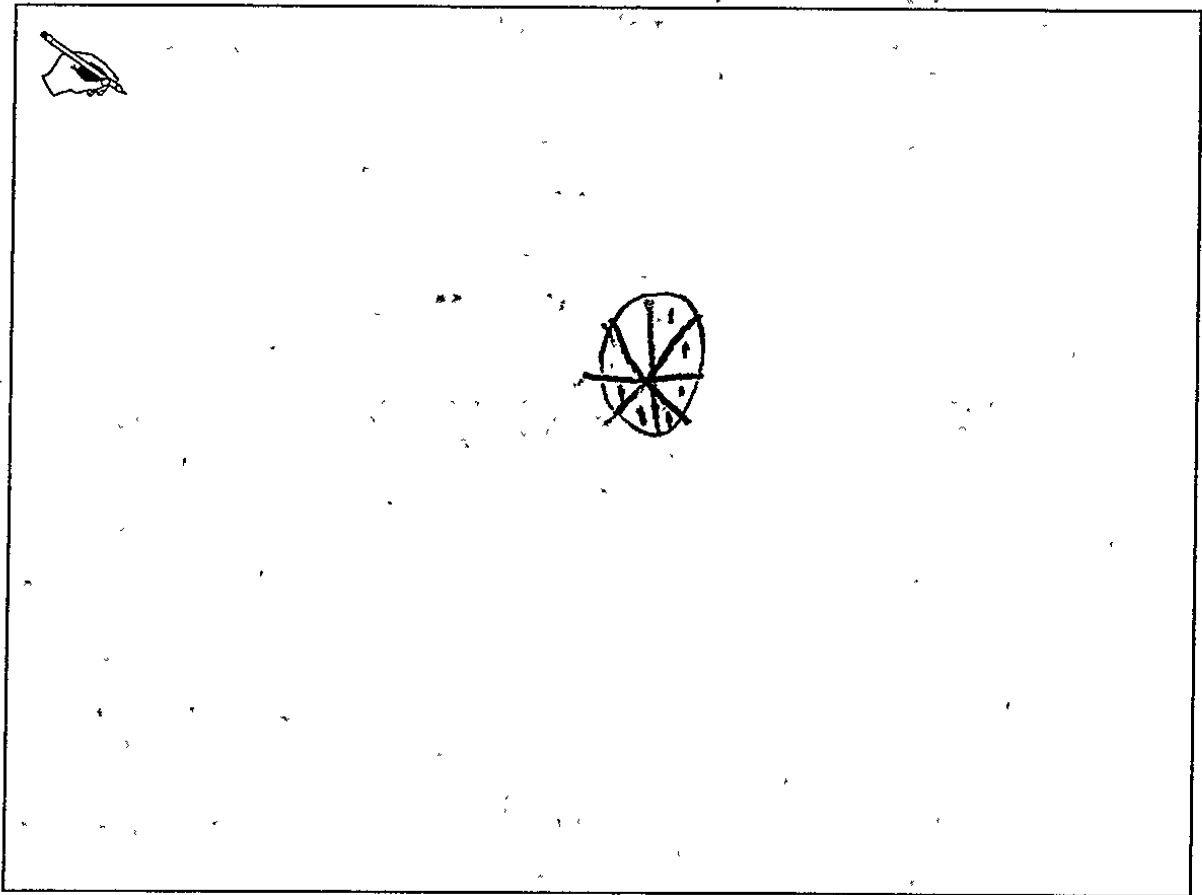
- a. Use addition equations and models to show how you can decompose $\frac{9}{8}$ in two different ways.

	First Way	Second Way
Equation	$\frac{1}{8} + \frac{8}{8} = \frac{9}{8}$	$\frac{5}{8} + \frac{4}{8} = \frac{9}{8}$
Model		

Movie Night Task

One of the pizzas ordered was cheese. By the end of the evening, the families had eaten $\frac{6}{8}$ of the cheese pizza

- b. Use a model and an equation to show what fraction of the cheese pizza was left.



Anchor 5

Litho 00034200102

Total Content Points: 2 (4.NF.B.3a, 4.NF.B.3b)

Total Practice Points: 1 (MP4x)

In Part A, the student provides at least one decomposition of $\frac{9}{8}$ into two or more addends with the equations $\frac{1}{8} + \frac{8}{8} = \frac{9}{8}$ and $\frac{5}{8} + \frac{4}{8} = \frac{9}{8}$ and both models (4.NF.B.3a). These two equations also achieve credit for providing two different equations or expressions to show decomposition of $\frac{9}{8}$ into two or more addends (4.NF.B.3b). In Part B, the student fails to indicate whether the dotted slices represent the remaining pizza or the pizza that was eaten, and thus, the model does not clearly identify that $\frac{1}{4}$ of the pizza remains (no credit for 4.NF.B.3d). The student uses accurate models in Part A to represent two different decompositions of $\frac{9}{8}$ (MP4x). In Part B, the student uses a model to show how much cheese pizza is left, but fails to provide an equation (no credit for MP4z).

Total Awarded Points: 3 out of 5

Movie Night Task

On Saturday evening, the Singleton and Lozano families watched movies together. They ordered four pizzas. Each pizza had eight slices. At the end of the evening, there were $\frac{9}{8}$ pizzas left.

- a. Use addition equations and models to show how you can decompose $\frac{9}{8}$ in two different ways.

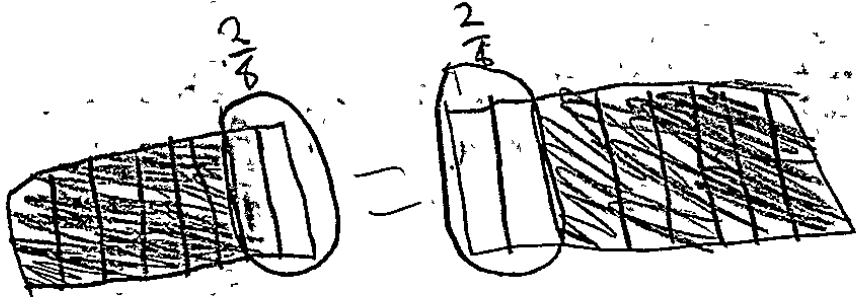
	First Way	Second Way
Equation	$\frac{7}{8} + \frac{2}{8} = \frac{9}{8}$	$\frac{8}{8} + \frac{1}{8} + \frac{8}{8} + \frac{1}{8}$ $= 4 \text{ pizzas}$
Model		

Movie Night Task

One of the pizzas ordered was cheese. By the end of the evening, the families had eaten $\frac{6}{8}$ of the cheese pizza

- b. Use a model and an equation to show what fraction of the cheese pizza was left.

$\frac{2}{4}$ LEFT OVER



$\frac{2}{4} = \frac{1}{2}$

Anchor 6

Litho 0014200113

Total Content Points: 2 (4.NF.B.3a, 4.NF.B.3d)

Total Practice Points: 0

In Part A, the student provides one decomposition of $\frac{9}{8}$ into two or more addends. Although $\frac{7}{8} + \frac{2}{8} = \frac{9}{8}$ is unacceptable as either an equation or an expression, the model form of the decomposition is correct and is eligible for credit (4.NF.B.3a). The student fails to provide two different equations or expressions to show decomposition of $\frac{9}{8}$ into two or more addends (no credit for 4.NF.B.3b). In Part B, the student identifies that $\frac{1}{4}$ of the pizza remains by stating “ $\frac{2}{8}$ is left over” and also by circling the $\frac{2}{8}$ in the model (4.NF.B.3d). The student represents only one decomposition of $\frac{9}{8}$ with an accurate model (no credit for MP4x). In Part B, the student uses an accurate model to show how much of the cheese pizza is left, but $\frac{2}{8} = \frac{1}{4}$, with the numerator and denominator of $\frac{2}{8}$ each divided by 2, is considered a comparison rather than an equation, and is not eligible for credit (no credit for MP4z).

Total Awarded Points: 2 out of 5

A-7a

Movie Night Task

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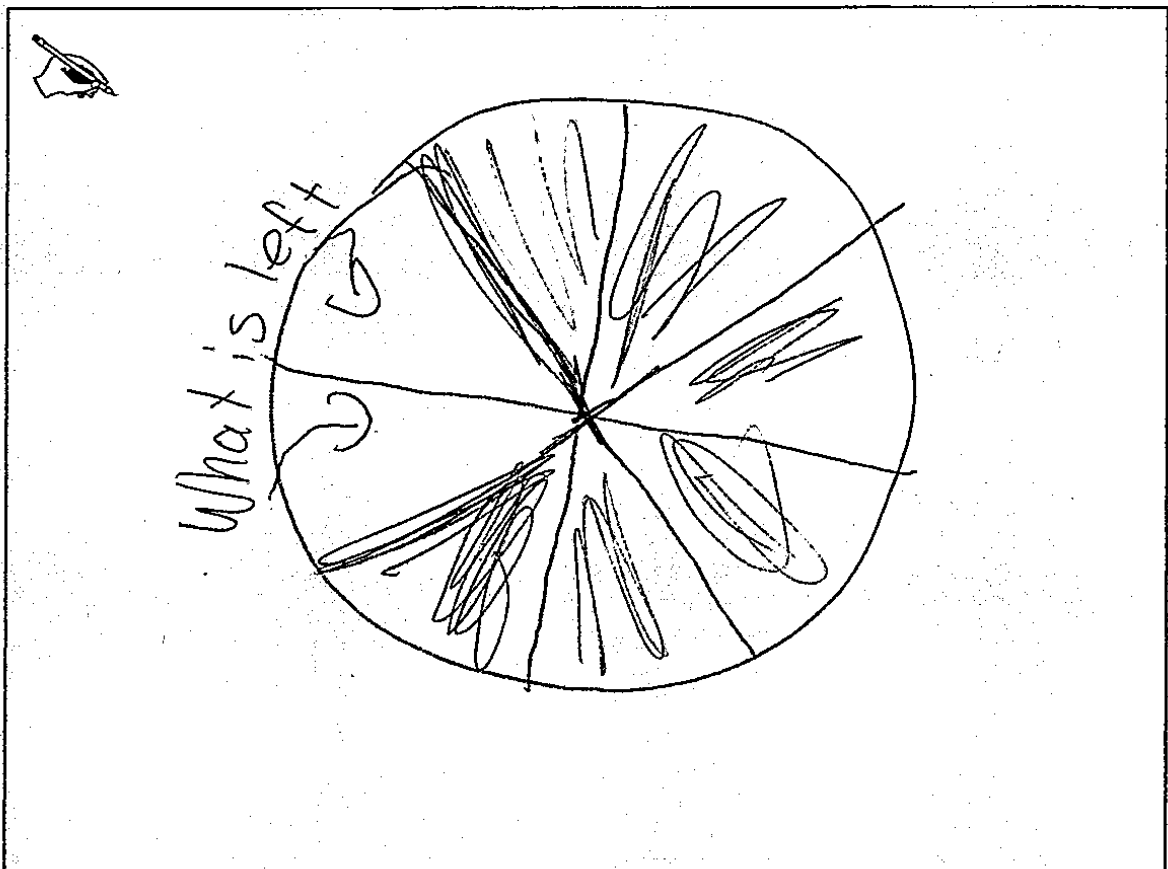
- a. Use addition equations and models to show how you can decompose $\frac{9}{8}$ in two different ways.

	First Way	Second Way
Equation	$9 - 1 = 8$	$8 + 1 = 9$
Model	<p>Handwritten model for the first way: A circle representing a pizza is divided into 8 equal slices. One slice is circled and labeled $\frac{1}{8}$. The remaining 7 slices are labeled $\frac{7}{8}$. Below the pizza, the equations $9 - 1 = 8$ and $\frac{7}{8} + \frac{1}{8} = \frac{8}{8} = 1$ are written.</p>	<p>Handwritten model for the second way: A circle representing a pizza is divided into 8 equal slices. Eight slices are labeled $\frac{8}{8}$ and one slice is labeled $\frac{1}{8}$. Below the pizza, the equations $\frac{8}{8} + 1 = \frac{9}{8} + 1 = \frac{10}{8}$ are written.</p>

Movie Night Task

One of the pizzas ordered was cheese. By the end of the evening, the families had eaten $\frac{6}{8}$ of the cheese pizza.

- b. Use a model and an equation to show what fraction of the cheese pizza was left.



Anchor 7

Litho 00444200146

Total Content Points: 1 (4.NF.B.3d)

Total Practice Points: 0

In Part A, the student provides no decompositions of $\frac{9}{8}$ (no credit for 4.NF.B.3a or 4.NF.B.3b).

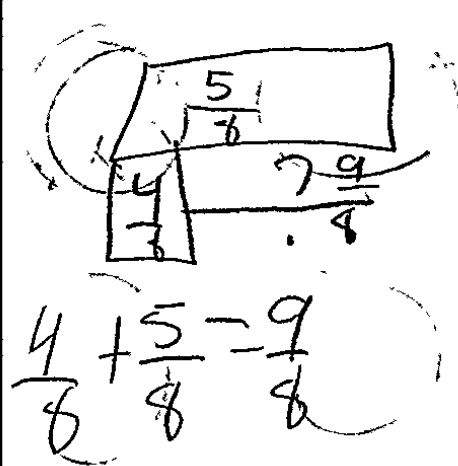
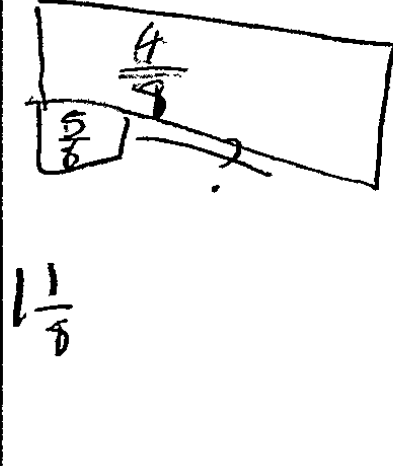
In Part B, the student identifies $\frac{1}{4}$ as the amount of pizza that remains, using a model labeled to clearly indicate which part of the pizza is left over (4.NF.B.3d). The student provides no models of decompositions of $\frac{9}{8}$ (no credit for MP4x). In Part B, the student uses a model to show how much of the cheese pizza is left, but fails to provide an equation (no credit for MP4z).

Total Awarded Points: 1 out of 5

Movie Night Task

On Saturday evening, the Singleton and Lozano families watched movies together. They ordered four pizzas. Each pizza had eight slices. At the end of the evening, there were $\frac{9}{8}$ pizzas left

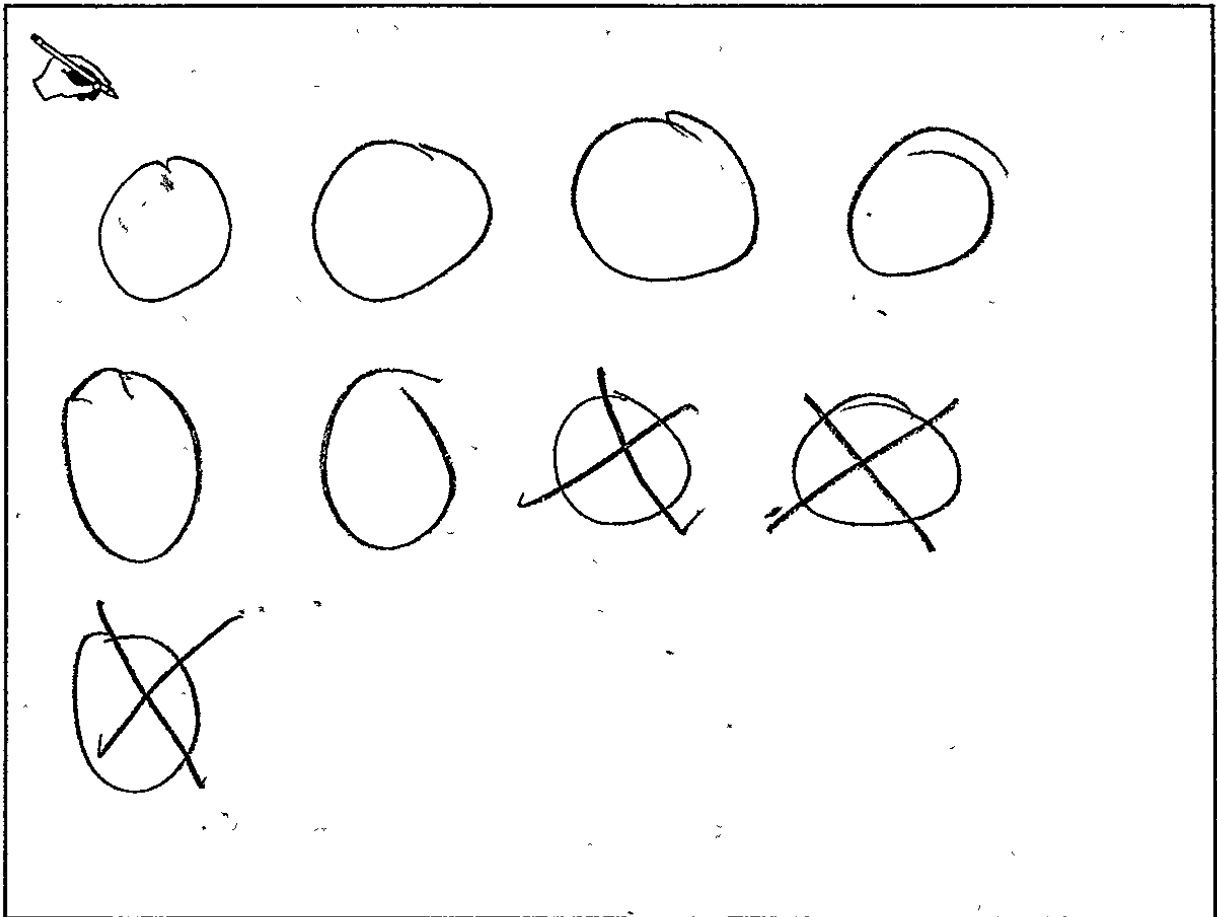
- a. Use addition equations and models to show how you can decompose $\frac{9}{8}$ in two different ways.

	First Way	Second Way
Equation	$\frac{4}{8} + \frac{5}{8} = \frac{9}{8}$	$\frac{4}{8} + \frac{5}{8} = 1\frac{1}{8}$
Model		

Movie Night Task

One of the pizzas ordered was cheese. By the end of the evening, the families had eaten $\frac{6}{8}$ of the cheese pizza.

- b. Use a model and an equation to show what fraction of the cheese pizza was left



Anchor 8

Litho 000524200092

Total Content Points: 1 (4.NF.B.3a)

Total Practice Points: 0

In Part A, the student provides one decomposition of $\frac{9}{8}$ into two or more addends

$\left(\frac{4}{8} + \frac{5}{8} = \frac{9}{8}\right)$ (4.NF.B.3a). The student fails to provide two different equations or expressions to

show decomposition of $\frac{9}{8}$ into two or more addends because $\frac{4}{8} + \frac{5}{8} = 1\frac{1}{8}$ is not a different

equation from $\frac{4}{8} + \frac{5}{8} = \frac{9}{8}$ (no credit for 4.NF.B.3b). The student does not identify that $\frac{1}{4}$ of the

pizza remains in Part B (no credit for 4.NF.B.3d). In Part A, the student provides inaccurate

models that do not clearly indicate decompositions of $\frac{9}{8}$ (no credit for MP4x). In Part B, the

student fails to provide an equation, and the attempt at a model is inaccurate and unclear (no credit for MP4z).

Total Awarded Points: 1 out of 5

Movie Night Task

On Saturday evening, the Singleton and Lozano families watched movies together. They ordered four pizzas. Each pizza had eight slices. At the end of the evening, there were $\frac{9}{8}$ pizzas left

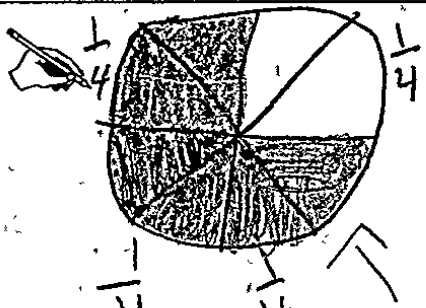
- a. Use addition equations and models to show how you can decompose $\frac{9}{8}$ in two different ways.

	First Way	Second Way
Equation	$\frac{9}{8} = 1\frac{1}{8}$ $9 \overline{) \frac{10}{8}}$	$\frac{8}{8} + \frac{8}{8} + \frac{7}{8} = \frac{23}{8} =$ $2\frac{7}{8}$
Model		

Movie Night Task

One of the pizzas ordered was cheese. By the end of the evening, the families had eaten $\frac{6}{8}$ of the cheese pizza

- b Use a model and an equation to show what fraction of the cheese pizza was left.



ate pizza

$$\frac{6}{8} = \frac{3}{4}$$

eat pizza

$$\frac{2}{8} + \frac{2}{8} + \frac{2}{8} = \frac{6}{8} = \frac{3}{4}$$

there is $\frac{2}{8}$ pizza left over

$$\frac{2}{8} = \frac{1}{4}$$

Anchor 9

Litho 00574200110

Total Content Points: 1 (4.NF.B.3d)

Total Practice Points: 0

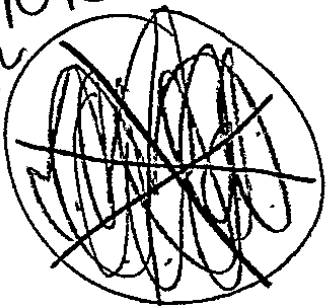
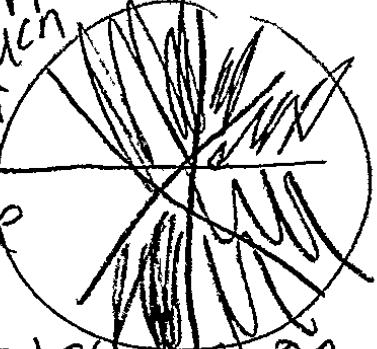
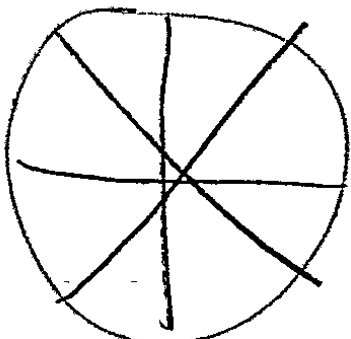
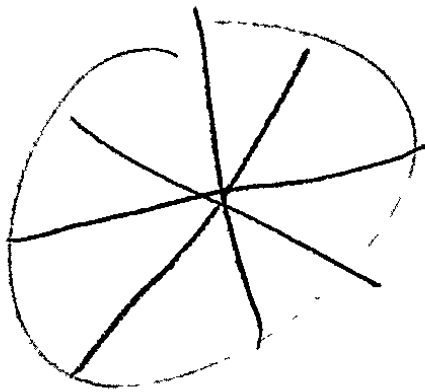
In Part A, the student provides no decomposition of $\frac{9}{8}$ into two or more addends (no credit for 4.NF.B.3a or 4.NF.B.3b). In Part B, student states “there is $\frac{2}{8}$ pizza left over” to clearly identify $\frac{1}{4}$ as the fraction of pizza that remains (4.NF.B.3d). The models provided in Part A are not clear or accurate decompositions of $\frac{9}{8}$ (no credit for MP4x). In Part B, the student provides an acceptable model, but $\frac{2}{8} = \frac{1}{4}$ is considered a comparison rather than an equation, while $\frac{2}{8} + \frac{2}{8} + \frac{2}{8} = \frac{6}{8} = \frac{3}{4}$ addresses the fraction of pizza that was eaten rather than the fraction that was left (no credit for MP4z).

Total Awarded Points: 1 out of 5

Movie Night Task

On Saturday evening, the Singleton and Lozano families watched movies together. They ordered four pizzas. Each pizza had eight slices. At the end of the evening, there were $\frac{9}{8}$ pizzas left.

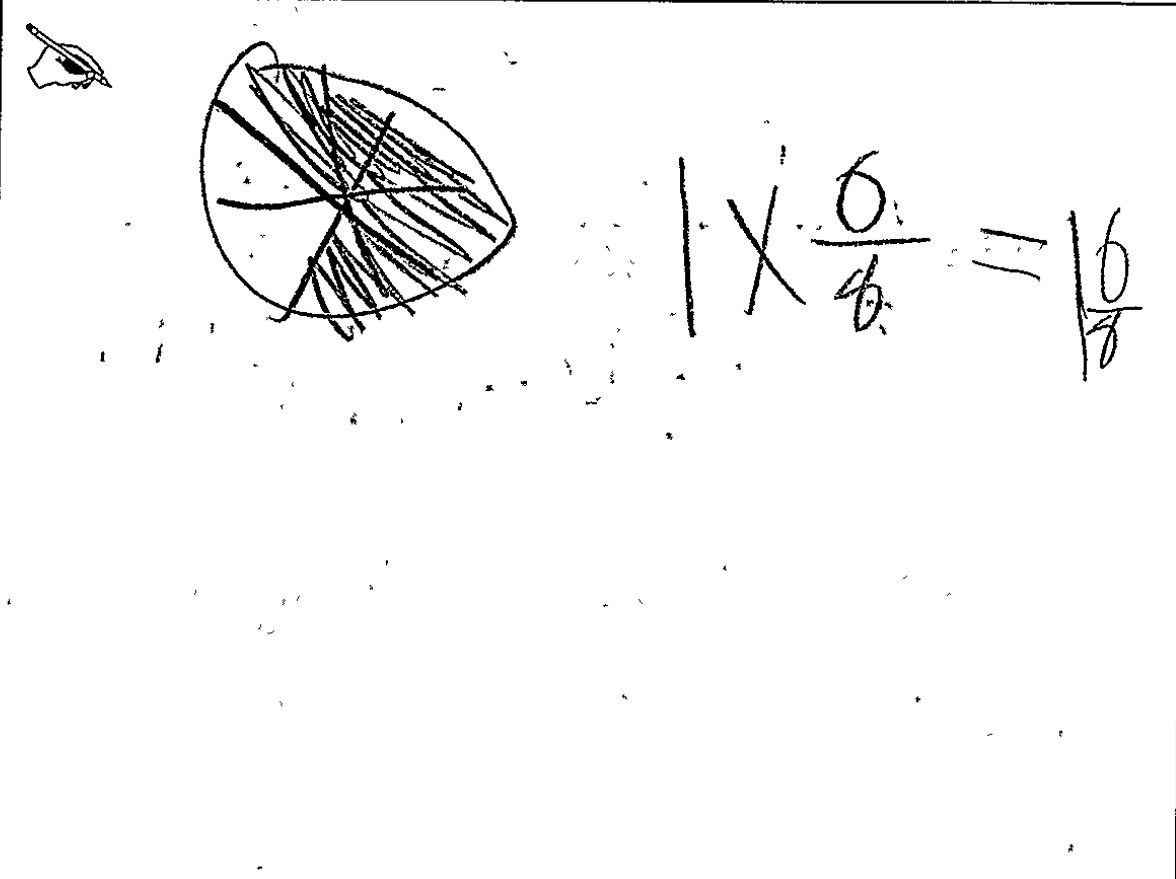
- a. Use addition equations and models to show how you can decompose $\frac{9}{8}$ in two different ways.

	First Way	Second Way
Equation	<p>1 whole pizza</p> 	<p>They each eat 1 pizza</p>  <p>$\frac{2}{8}$ left of one pizza</p>
Model		

Movie Night Task

One of the pizzas ordered was cheese. By the end of the evening, the families had eaten $\frac{6}{8}$ of the cheese pizza

- b. Use a model and an equation to show what fraction of the cheese pizza was left.



The diagram shows a circle representing a pizza, divided into 8 equal slices. Six of these slices are shaded with diagonal lines, representing $\frac{6}{8}$ of the pizza eaten. To the right of the pizza is a handwritten equation: $1 \times \frac{6}{8} = \frac{6}{8}$. In the top left corner of the box, there is a small drawing of a hand holding a pencil.

Total Content Points: 0

Total Practice Points: 0

In Part A, the student provides no decomposition of $\frac{9}{8}$ into two or more addends (no credit for 4.NF.B.3a or 4.NF.B.3b). In Part B, the student fails to indicate whether the colored-in slices represent the remaining pizza or the pizza that was eaten; thus, the model does not clearly identify that $\frac{1}{4}$ of the pizza remains. The student's equation also does not identify that $\frac{1}{4}$ is the fraction of pizza that remains (no credit for 4.NF.B.3d). In Part A, the provided models are not clear or accurate decompositions of $\frac{9}{8}$ (no credit for MP4x). In Part B, the student provides an acceptable model, but the equation $1 \times \frac{6}{8} = 1\frac{6}{8}$ incorrectly represents how much cheese pizza is left (no credit for MP4z).

Total Awarded Points: 0 out of 5