SECURE MATERIAL – Reader Name: _____

Tennessee Comprehensive Assessment Program

TCAP/CRA

2014

4

Phase II

Flag Task

Anchor Set

Part 2: Constructed Response Assessment

Flag Task

Juliana makes a flag for social studies class. The flag is divided into equal sections, as shown in the sketch:

a. Juliana uses a total of 5 square yards of fabric to make the flag. How many square yards of the fabric are red? Write a multiplication equation involving fractions to show your thinking.

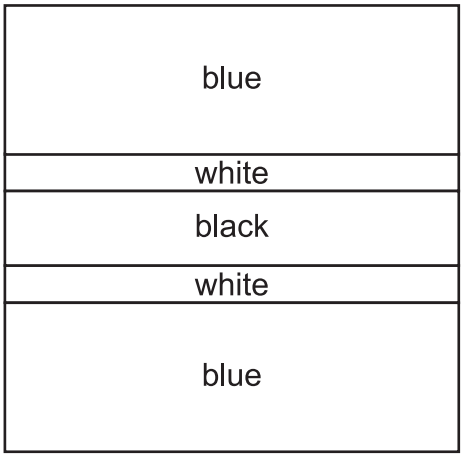
b. Juliana realizes that there is a relationship between the fraction of the flag that is red and the fraction of the flag that is yellow.

Write a multiplication equation showing how many times greater the fraction of the flag that is red is than the fraction of the flag that is yellow.

Part 2: Constructed Response Assessment

Flag Task

Nelson makes a different flag. The flag is divided into sections, as shown in the sketch:



Each blue section is $\frac{4}{12}$ of the whole flag. Each white section is $\frac{1}{12}$ of the whole flag.

c. Write and solve addition and/or subtraction equations involving fractions to determine what fraction of the whole flag is black.

Flag Task

d. Nelson writes the equation:

$$\frac{1}{12} \times 4 = \frac{4}{12}$$

Explain how Nelson's equation shows the relationship between two colors of his flag.

REVIEW YOUR WORK IF YOU HAVE TIME.

Scoring Guide

The CCSS for Mathematical Content (3 points)

4.NF.B.4 Multiplies 5 by $\frac{2}{3}$ to get $\frac{10}{3}$ or any equivalencies. _____

(1 Point)

4.NF.B.4c Writes the equation $\frac{1}{3} \times 2 = \frac{2}{3}$ or the equation $\frac{5}{3} \times 2 = \frac{10}{3}$. _____

(1 Point)

4.NF.B.3d Determines the black portion in part c to be $\frac{2}{12}$ or any equivalencies. _____

(1 Point)

The CCSS for Mathematical Practice (2 points)

MP2 Explains the relationship between a blue section $\left(\frac{4}{12}\right)$ and a white section $\left(\frac{1}{12}\right)$ _____

in part d. Student may do this by:

- Explaining that a blue section is four times the size of a white section.
- Explaining that four white sections is the same fraction of the whole as one white section.

(1 Point)
(MP2: Reasons abstractly and quantitatively.)

MP4 Writes one or more accurate expressions or equations that model the situation in part c. _____

(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.4	Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
4.NF.B.4c	Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*
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*

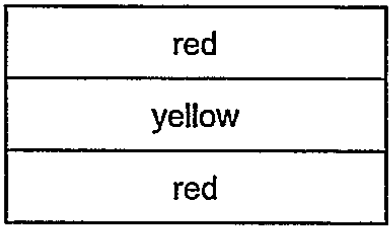
1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look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

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

A-1a

Flag Task

Juliana makes a flag for social studies class. The flag is divided into equal sections, as shown in the sketch:



a. Juliana uses a total of 5 square yards of fabric to make the flag. How many square yards of the fabric are red? Write a multiplication equation involving fractions to show your thinking.

$\frac{1}{3} = 1\frac{2}{3}$ yds

$1\frac{2}{3}$ yds $\times 2 = 3\frac{1}{3}$ yds

b. Juliana realizes that there is a relationship between the fraction of the flag that is red and the fraction of the flag that is yellow.

Write a multiplication equation showing how many times greater the fraction of the flag that is red is than the fraction of the flag that is yellow.

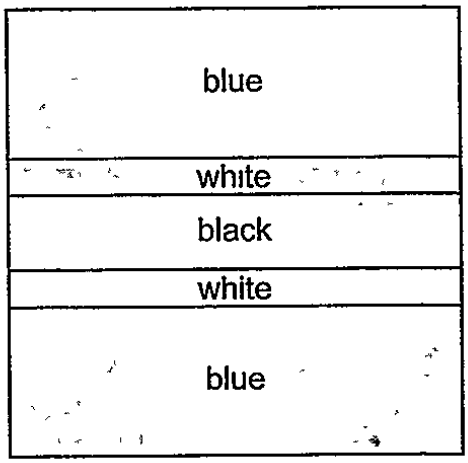
$\frac{1}{3} = 1\frac{2}{3}$ yds

yellow $1\frac{2}{3}$ yds $\times 2 =$ red $3\frac{2}{3}$ yds

A-1b

Flag Task

Nelson makes a different flag. The flag is divided into sections, as shown in the sketch.



Each blue section is $\frac{4}{12}$ of the whole flag. Each white section is $\frac{1}{12}$ of the whole flag.

c. Write and solve addition and/or subtraction equations involving fractions to determine what fraction of the whole flag is black.

$\frac{4}{12} + \frac{4}{12} = \frac{8}{12} = \frac{4}{6}$ blue

$\frac{1}{12} + \frac{1}{12} = + \frac{2}{12} = + \frac{1}{6}$ white

$\frac{12}{12} \quad \frac{5}{6} \quad \frac{12}{12} = \frac{6}{6}$ black

A-1c

Flag Task

d Nelson writes the equation:

$$\frac{1}{12} \times 4 = \frac{4}{12}$$

Explain how Nelson's equation shows the relationship between two colors of his flag.

Nelson's relationship is between blue ($\frac{4}{12}$) and white ($\frac{1}{12} \times 4$) because blue is $\frac{4}{12}$ and 4 whites fit in 1 blue.

REVIEW YOUR WORK IF YOU HAVE TIME.

Litho#: 00454200113

Anchor 1 00454200113

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

Total Practice Points: 2 (MP2, MP4)

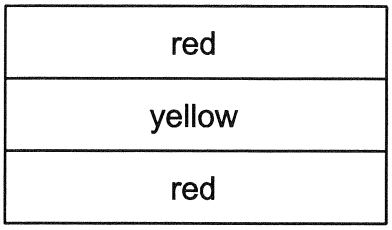
In Part A, the student uses a two-part process to multiply 5 by $\frac{2}{3}$ to get $3\frac{1}{3}$. In Part A, the student writes $\frac{1}{3} = 1\frac{2^{2}}{3}$ yds, indicating that one third of the entire flag (5 square yards) is $1\frac{2}{3}$ square yards. Next, the student takes the product, $1\frac{2}{3}$, and multiplies it by 2 to get $3\frac{1}{3}$. The student correctly multiplies a whole number by a fraction with the equation "$1\frac{2^{2}}{3}_{\text{yds}} \times 2 = 3\frac{1^{2}}{3}$ yds" (4.NF.B.4). In Part B, the student multiplies $1\frac{2}{3} \times 2$ to get $3\frac{1}{3}$ square yards (4.NF.B.4c). In Part C, the student determines the black portion to be $\frac{2}{12}$ and labels accordingly (4.NF.B.3d). In Part D, the student explains that "blue is $\frac{4}{12}$ and 4 whites fit in 1 blue," indicating that four white sections are the same as one blue section (MP2). The student writes accurate equations in Part C $\left(\frac{4}{12} + \frac{4}{12} = \frac{8}{12}; \frac{1}{12} + \frac{1}{12} = \frac{2}{12}; \frac{12}{12} - \frac{5}{6} = \frac{2}{12}\right)$ that model the situation (MP4).

Total Awarded Points: 5 out of 5

Flag Task

A-2a

Juliana makes a flag for social studies class. The flag is divided into equal sections, as shown in the sketch:



a. Juliana uses a total of 5 square yards of fabric to make the flag. How many square yards of the fabric are red? Write a multiplication equation involving fractions to show your thinking.

$\frac{2}{3} \times 5 = 3\frac{1}{3}$ sq yds

red

b. Juliana realizes that there is a relationship between the fraction of the flag that is red and the fraction of the flag that is yellow.

Write a multiplication equation showing how many times greater the fraction of the flag that is red is than the fraction of the flag that is yellow.

red
yellow
red

$\frac{1}{3} \times 5$

$\times 2$
yellow

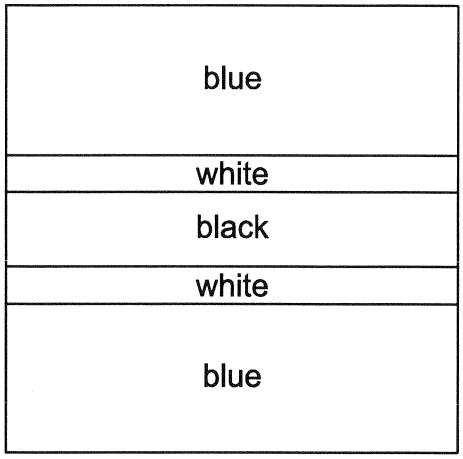
$\frac{1}{3} \times 2 = \frac{2}{3}$
red

1004

Flag Task

A-2b

Nelson makes a different flag. The flag is divided into sections, as shown in the sketch:



Each blue section is $\frac{4}{12}$ of the whole flag. Each white section is $\frac{1}{12}$ of the whole flag.

c. Write and solve addition and/or subtraction equations involving fractions to determine what fraction of the whole flag is black.

$\frac{4}{12} + \frac{4}{12} + \frac{1}{12} + \frac{1}{12} = \frac{10}{12}$

$\frac{12}{12} - \frac{10}{12} = \frac{2}{12} = \text{black}$

1004

A-2c

Flag Task

d. Nelson writes the equation:

$$\frac{1}{12} \times 4 = \frac{4}{12}$$

Explain how Nelson's equation shows the relationship between two colors of his flag.

There are 4 blues to every white

1004

Anchor 2 Litho 1004

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

Total Practice Points: 1 (MP4)

In Part A, the student multiplies $\frac{2}{3}$ by 5 to get $3\frac{1}{3}$ (4.NF.B.4). In Part B, the student writes $\frac{1}{3} \times 2 = \frac{2}{3}$ (4.NF.B.4c). In Part C, the student determines the black portion to be $\frac{2}{12}$ and labels and circles the fractions representing the black portion (4.NF.B.3d). In Part D, the student incorrectly explains the relationship between the blue and the white sections by indicating that a white section is four times the size of a blue section, rather than the opposite ("There are 4 blues to every white") (no credit for MP2). The student writes two accurate equations in Part C $\left(\frac{4}{12} + \frac{4}{12} + \frac{1}{12} + \frac{1}{12} = \frac{10}{12}; \frac{12}{12} - \frac{10}{12} = \frac{2}{12}\right)$ that together model the situation (MP4).

Total Awarded Points: 4 out of 5

Flag Task

Juliana makes a flag for social studies class. The flag is divided into equal sections, as shown in the sketch.

red
yellow
red

a. Juliana uses a total of 5 square yards of fabric to make the flag. How many square yards of the fabric are red? Write a multiplication equation involving fractions to show your thinking.

$\frac{5}{1} \times \frac{2}{3}$ $\frac{10}{3} = 3\frac{1}{3}$ Sq yds of fabric

b. Juliana realizes that there is a relationship between the fraction of the flag that is red and the fraction of the flag that is yellow.

Write a multiplication equation showing how many times greater the fraction of the flag that is red is than the fraction of the flag that is yellow.

$1\frac{2}{3}$

$3\frac{1}{3} \times 1\frac{2}{3}$ $\frac{5}{3} \times \frac{10}{3}$ $\frac{50}{9}$

$9\overline{)50}$ $5\frac{5}{9}$ times greater

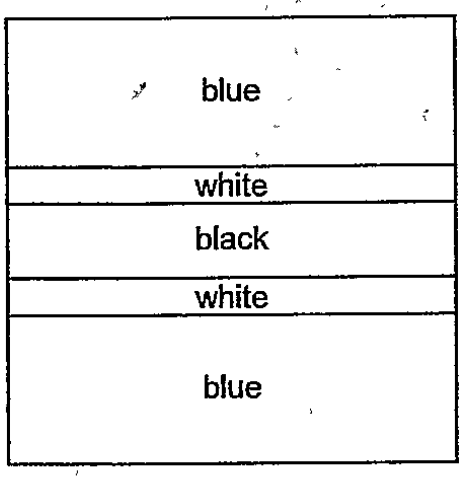
-45

5

A-3b

Flag Task

Nelson makes a different flag. The flag is divided into sections, as shown in the sketch:



Each blue section is $\frac{4}{12}$ of the whole flag Each white section is $\frac{1}{12}$ of the whole flag.

c. Write and solve addition and/or subtraction equations involving fractions to determine what fraction of the whole flag is black.

$\frac{4}{12} + \frac{4}{12} + \frac{1}{12} + \frac{1}{12} = \frac{10}{12}$ leaving $\frac{2}{12}$ are Black or

$\frac{12}{12} - \frac{10}{12} = \frac{2}{12}$ are Black

A-3c

Flag Task

d. Nelson writes the equation:

$$\frac{1}{12} \times 4 = \frac{4}{12}$$

Explain how Nelson's equation shows the relationship between two colors of his flag.

$\frac{1}{12}$ was = to white and blue was = to $\frac{4}{12}$

REVIEW YOUR WORK IF YOU HAVE TIME.

Litho#: 00014200110

Anchor 3 Litho 00014200110

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

Total Practice Points: 1 (MP4)

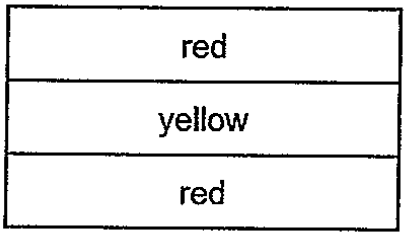
In Part A, although the student does not set up an equation, $\frac{5}{1}$ is multiplied by $\frac{2}{3}$ and the answer, $\frac{10}{3}$, is provided (4.NF.B.4). In Part B, the student mistakenly multiplies the total number of square yards of red by the total number of square yards of yellow instead of determining how many times greater the red fraction of the flag is than the yellow fraction of the flag (no credit for 4.NF.B.4c). In Part C, the student determines the black portion to be $\frac{2}{12}$ (4.NF.B.3d). In Part D, the student tells which fraction represents white and which represents blue, but does not explain the relationship between the blue and the white sections (no credit for MP2). In Part C, the student writes two equations $\left(\frac{4}{12}+\frac{4}{12}+\frac{1}{12}+\frac{1}{12}=\frac{10}{12};\ \frac{12}{12}-\frac{10}{12}=\frac{2}{12}\right)$ that accurately model the situation (MP4).

Total Awarded Points: 3 out of 5

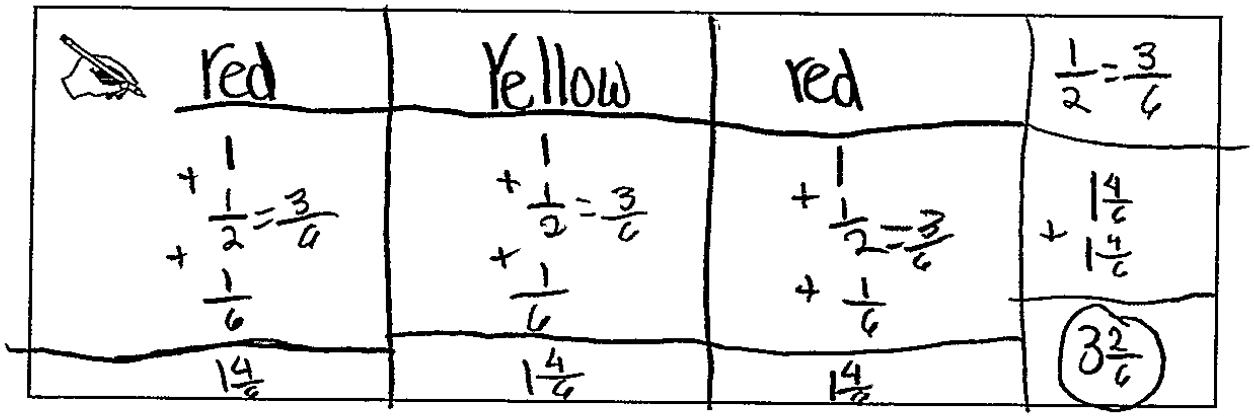
A-4a

Flag Task

Juliana makes a flag for social studies class. The flag is divided into equal sections, as shown in the sketch:

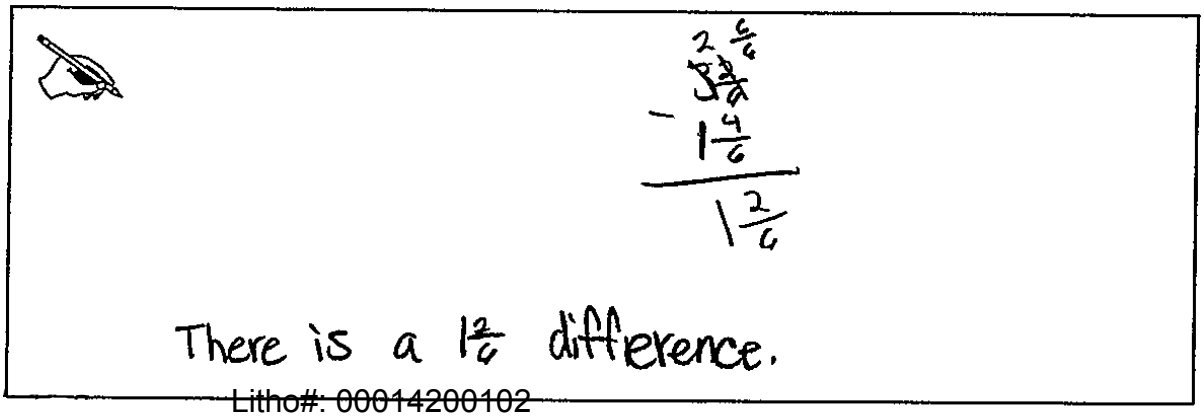


a. Juliana uses a total of 5 square yards of fabric to make the flag. How many square yards of the fabric are red? Write a multiplication equation involving fractions to show your thinking.



b. Juliana realizes that there is a relationship between the fraction of the flag that is red and the fraction of the flag that is yellow.

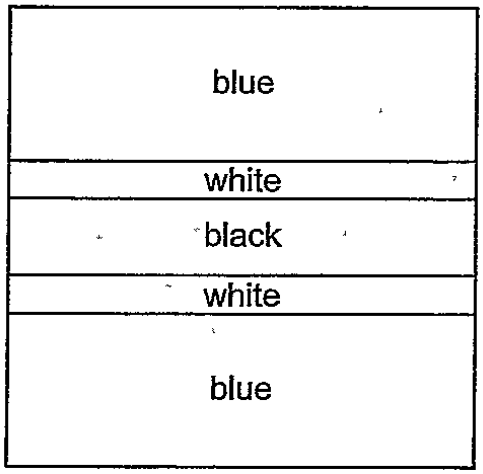
Write a multiplication equation showing how many times greater the fraction of the flag that is red is than the fraction of the flag that is yellow.



A-4b

Flag Task

Nelson makes a different flag. The flag is divided into sections, as shown in the sketch:



Each blue section is $\frac{4}{12}$ of the whole flag. Each white section is $\frac{1}{12}$ of the whole flag.

c. Write and solve addition and/or subtraction equations involving fractions to determine what fraction of the whole flag is black.

blue

$\frac{4}{12} + \frac{4}{12} = \frac{8}{12}$

white

$\frac{1}{12} + \frac{1}{12} = \frac{2}{12}$

2

$\frac{8}{12} + \frac{2}{12} = \frac{10}{12}$

The blacks is $\frac{2}{12}$ which is equivalent to two of the whites.

$\frac{12}{12} - \frac{10}{12} = \frac{2}{12}$

A-4c

Flag Task

d. Nelson writes the equation

$$\frac{1}{12} \times 4 = \frac{4}{12}$$

Explain how Nelson's equation shows the relationship between two colors of his flag

He was probaly trying to show that it would take 4 white ones to equal one blue one.

Litho#: 00014200102

Anchor 4 Litho 00014200102

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

Total Practice Points: 2 (MP2, MP4)

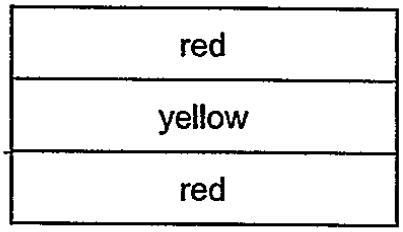
In Part A, the student writes a system of addition equations that together yield the correct answer, $3\frac{2}{6}$. However, the student does not write a multiplication equation as instructed (no credit for 4.NF.B.4). The student subtracts instead of multiplying in Part B (no credit for 4.NF.B.4c). In Part C, the student determines the black portion to be $\frac{2}{12}$ (4.NF.B.3d). In Part D, the student explains the relationship between the blue and the white sections by explaining that a blue section is four times the size of a white section ("He was probaly trying to show that it would take 4 white ones to equal one blue one") (MP2). The student writes four accurate equations $\left(\frac{4}{12}+\frac{4}{12}=\frac{8}{12};\ \frac{1}{12}+\frac{1}{12}=\frac{2}{12};\ \frac{8}{12}+\frac{2}{12}=\frac{10}{12};\ \frac{12}{12}-\frac{10}{12}=\frac{2}{12}\right)$ that together model the situation in Part C (MP4).

Total Awarded Points: 3 out of 5

A-5a

Flag Task

Juliana makes a flag for social studies class The flag is divided into equal sections, as shown in the sketch:



a. Juliana uses a total of 5 square yards of fabric to make the flag. How many square yards of the fabric are red? Write a multiplication equation involving fractions to show your thinking.

$\frac{2}{3} \times \frac{5}{1} = \frac{10}{3} = 3\frac{1}{3}$ of the flag is red.

b. Juliana realizes that there is a relationship between the fraction of the flag that is red and the fraction of the flag that is yellow.

Write a multiplication equation showing how many times greater the fraction of the flag that is red is than the fraction of the flag that is yellow.

$\frac{1}{3} \times \frac{5}{1} = \frac{5}{3} = 1\frac{2}{3}$ $\frac{5}{3} \times \frac{2}{1} = \frac{10}{3} = 3\frac{1}{3}$

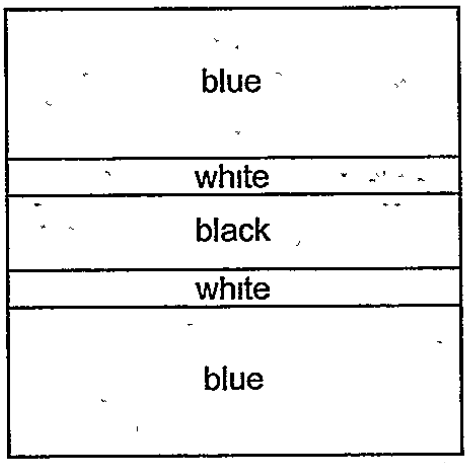
$\frac{2}{5} \times \frac{5}{1} = \frac{10}{3} = 3\frac{1}{3}$

yellow x 2 = red

A-5b

Flag Task

Nelson makes a different flag. The flag is divided into sections, as shown in the sketch:



Each blue section is $\frac{4}{12}$ of the whole flag. Each white section is $\frac{1}{12}$ of the whole flag

c. Write and solve addition and/or subtraction equations involving fractions to determine what fraction of the whole flag is black.

$\frac{8}{12} + \frac{2}{12} = \frac{10}{12} + \frac{2}{12} = \frac{12}{12}$

$\frac{4}{12} \times \frac{2}{1} = \frac{8}{12}$ $\frac{1}{12} \times \frac{2}{1} = \frac{2}{12}$

A-5c

Flag Task

d. Nelson writes the equation:

$$\frac{1}{12} \times 4 = \frac{4}{12}$$

Explain how Nelson's equation shows the relationship between two colors of his flag.

It shows the blue and the white and they were bothe timesed by two so he added them together to times them by for.

STOP

REVIEW YOUR WORK IF YOU HAVE TIME.

Anchor 5 Litho 00264200113

Total Content Points: 2 (4.NF.B.4, 4.NF.B.4c)

Total Practice Points: 0

In Part A, the student multiplies $\frac{2}{3}$ by $\frac{5}{1}$ to get $\frac{10}{3}$ (4.NF.B.4). In Part B, the student writes the equation $\frac{5}{3} \times \frac{2}{1} = \frac{10}{3} = 3\frac{1}{3}$ to indicate that the fraction of the flag that is red is twice the fraction that is yellow (4.NF.B.4c). In Part C, the student does not label any of the fractions and thus does not make it clear which fraction of the whole flag is black (no credit for 4.NF.B.3d). In Part D, the student incorrectly explains the relationship between the blue and the white sections ("It shows the blue and the white and they were bothe timesed by two so he added them together to times them by for [four]") (no credit for MP2). In Part C, the student attempts to write a series of equations that model the situation; however, $\frac{8}{12} + \frac{2}{12} = \frac{10}{12} + \frac{2}{12} = \frac{12}{12}$ is not an accurate equation because $\frac{8}{12} + \frac{2}{12}$ is equal to neither $\frac{10}{12} + \frac{2}{12}$ nor $\frac{12}{12}$ (no credit for MP4).

Total Awarded Points: 2 out of 5

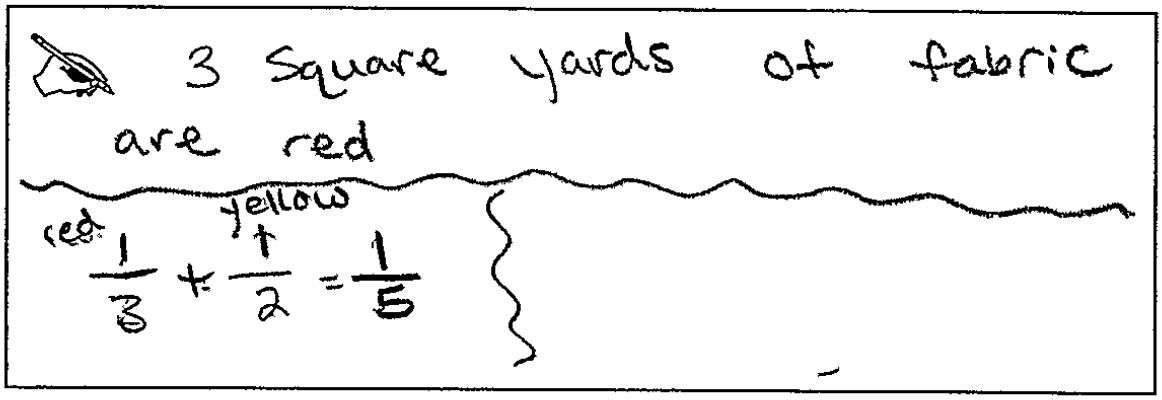
A-6a

Flag Task

Juliana makes a flag for social studies class. The flag is divided into equal sections, as shown in the sketch.

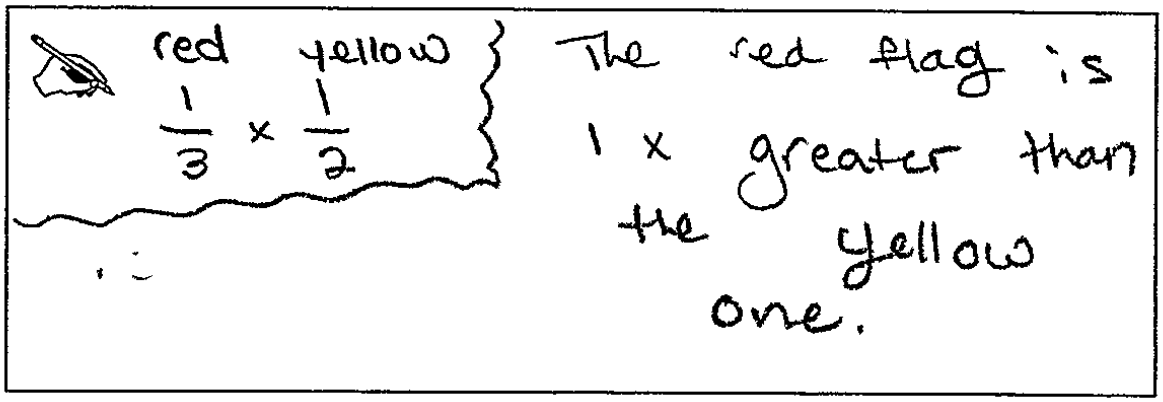
red
yellow
red

a. Juliana uses a total of 5 square yards of fabric to make the flag. How many square yards of the fabric are red? Write a multiplication equation involving fractions to show your thinking.



b. Juliana realizes that there is a relationship between the fraction of the flag that is red and the fraction of the flag that is yellow.

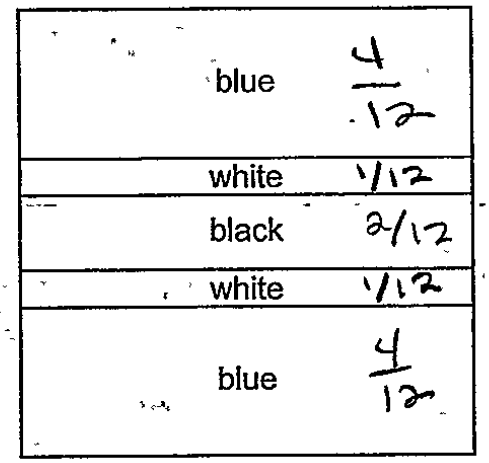
Write a multiplication equation showing how many times greater the fraction of the flag that is red is than the fraction of the flag that is yellow.



A-6b

Flag Task

Nelson makes a different flag. The flag is divided into sections, as shown in the sketch.



Each blue section is $\frac{4}{12}$ of the whole flag. Each white section is $\frac{1}{12}$ of the whole flag.

c. Write and solve addition and/or subtraction equations involving fractions to determine what fraction of the whole flag is black

b. b. W. W. Black

$\frac{4}{12} + \frac{4}{12} + \frac{1}{12} + \frac{1}{12} + \frac{2}{12}$

A-6c

Flag Task

d. Nelson writes the equation:

$$\frac{1}{12} \times 4 = \frac{4}{12}$$

Explain how Nelson's equation shows the relationship between two colors of his flag.

Nelson's Show the relationship between the 2 colors of his flag by having them have different fractions see his blue part is $\frac{4}{12}$ of the whole section and his white section is $\frac{1}{12}$ so he share them like that

STOP

REVIEW YOUR WORK IF YOU HAVE TIME.

Anchor 6 Litho 00234200113

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

Total Practice Points: 1 (MP4)

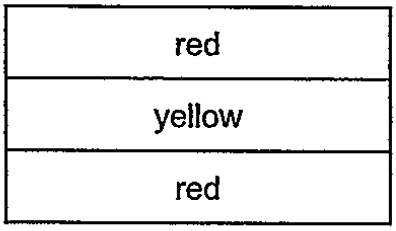
In Part A, the student does not demonstrate an understanding of how to multiply a fraction by a whole number (no credit for 4.NF.B.4). In Part B, the student incorrectly states that "The red flag is 1 × greater than the yellow one" (no credit for 4.NF.B.4c). In Part C, the student determines the black portion to be $\frac{2}{12}$ and labels which fraction goes with black (4.NF.B.3d). In Part D, the student explains that $\frac{1}{12}$ represents the white section and that $\frac{4}{12}$ represents the blue section, but does not explain their relationship (no credit for MP2). The student writes an accurate expression in Part C $\left(\frac{4}{12}+\frac{4}{12}+\frac{1}{12}+\frac{1}{12}+\frac{2}{12}\right)$ that models the situation (MP4).

Total Awarded Points: 2 out of 5

A-7a

Flag Task

Juliana makes a flag for social studies class. The flag is divided into equal sections, as shown in the sketch:



a. Juliana uses a total of 5 square yards of fabric to make the flag. How many square yards of the fabric are red? Write a multiplication equation involving fractions to show your thinking.

$\frac{2}{3} \times \frac{5}{1} = \frac{10}{3} = 3\frac{1}{3}$ of the flag is red.

b. Juliana realizes that there is a relationship between the fraction of the flag that is red and the fraction of the flag that is yellow.

Write a multiplication equation showing how many times greater the fraction of the flag that is red is than the fraction of the flag that is yellow.

red $\frac{2}{3}$ | Yellow $\frac{1}{3}$

$\frac{1}{3} \times \frac{5}{1} \quad \frac{5}{3} = \frac{2}{3}$

Yellow

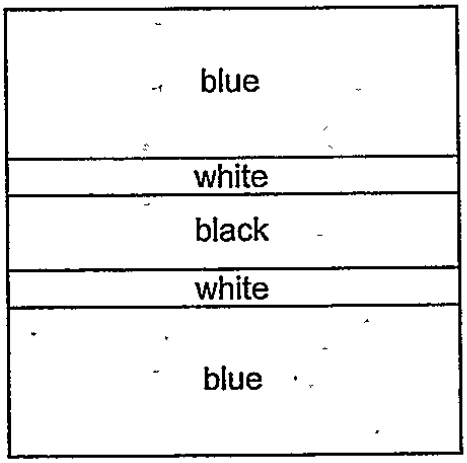
red

$\frac{2}{3} \times \frac{5}{1} = \frac{10}{3} = 3\frac{1}{3}$

A-7b

Flag Task

Nelson makes a different flag The flag is divided into sections, as shown in the sketch:



Each blue section is $\frac{4}{12}$ of the whole flag. Each white section is $\frac{1}{12}$ of the whole flag.

c Write and solve addition and/or subtraction equations involving fractions to determine what fraction of the whole flag is black

$\frac{8}{12} - \frac{2}{12} = \frac{6}{12} = \frac{3}{6}$ of the flag is black.

A-7c

Flag Task

d. Nelson writes the equation:

$$\frac{1}{12} \times 4 = \frac{4}{12}$$

Explain how Nelson's equation shows the relationship between two colors of his flag.

He used $\frac{1}{12}$ (white) 4 times to get $\frac{4}{12}$ (blue).

REVIEW YOUR WORK IF YOU HAVE TIME.

Litho#: 00034200113

Anchor 7 Litho 00034200113

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

Total Practice Points: 1 (MP2)

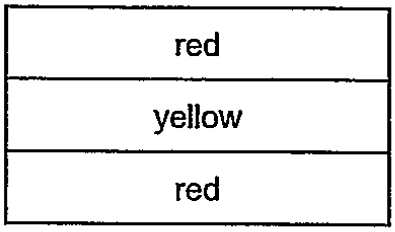
In Part A, the student multiplies $\frac{2}{3}$ by $\frac{5}{1}$ to get $\frac{10}{3}$ (4.NF.B.4). In Part B, the student finds the correct area of the red and the yellow sections of the flag, but does not write either the equation $\frac{1}{3} \times 2 = \frac{2}{3}$ or the equation $\frac{5}{3} \times 2 = \frac{10}{3}$ to compare the areas (no credit for 4.NF.B.4c). In Part C, the student incorrectly determines the black portion of the flag to be $\frac{3}{6}$ (no credit for 4.NF.B.3d). In Part D, the student explains the relationship between the blue and the white sections by explaining that the area of the white section times four results in the area of the blue section ("He used $\frac{1}{12}$ (white) times 4 to get $\frac{4}{12}$ (blue).") (MP2). In Part C, the student writes an accurate equation $\left(\frac{8}{12} - \frac{2}{12} = \frac{6}{12} = \frac{3}{6}\right)$, but that equation does not model the situation (no credit for MP4).

Total Awarded Points: 2 out of 5

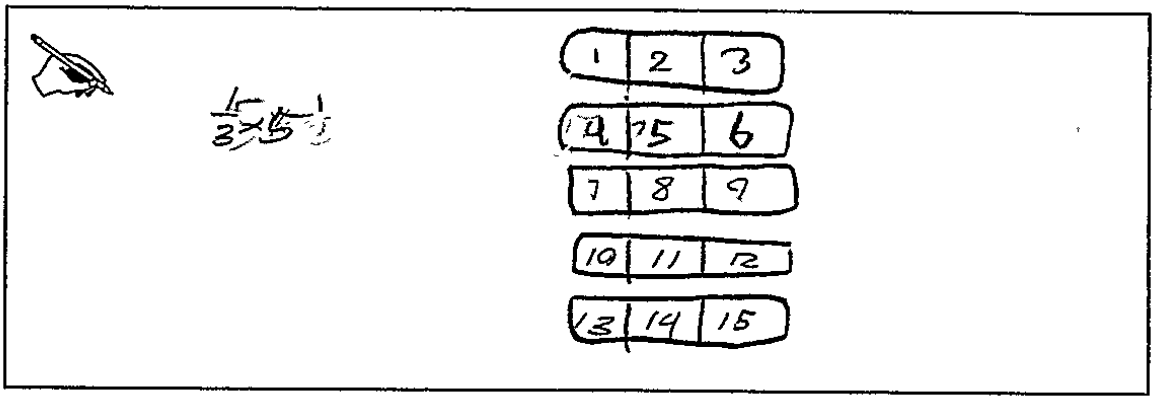
A-8a

Flag Task

Juliana makes a flag for social studies class. The flag is divided into equal sections, as shown in the sketch:

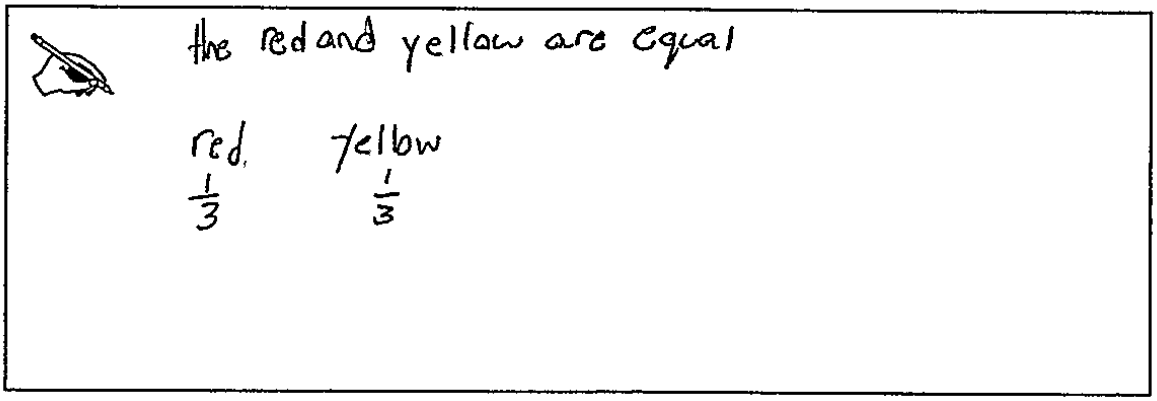


a. Juliana uses a total of 5 square yards of fabric to make the flag. How many square yards of the fabric are red? Write a multiplication equation involving fractions to show your thinking.



b Juliana realizes that there is a relationship between the fraction of the flag that is red and the fraction of the flag that is yellow.

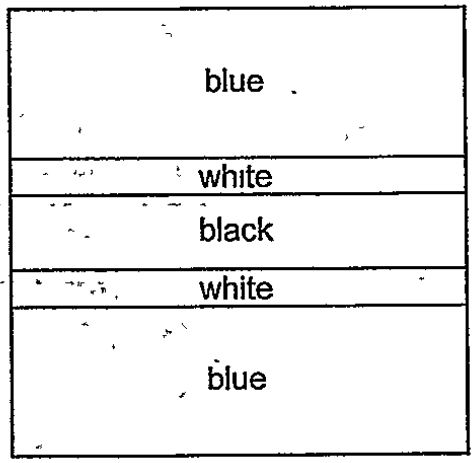
Write a multiplication equation showing how many times greater the fraction of the flag that is red is than the fraction of the flag that is yellow.



A-8b

Flag Task

Nelson makes a different flag The flag is divided into sections, as shown in the sketch.



Each blue section is $\frac{4}{12}$ of the whole flag. Each white section is $\frac{1}{12}$ of the whole flag.

c. Write and solve addition and/or subtraction equations involving fractions to determine what fraction of the whole flag is black

blue blue blue
$\frac{4}{12} + \frac{4}{12} = \frac{8}{12}$

White white white
$\frac{1}{12} + \frac{1}{12} = \frac{2}{12}$

$\frac{8}{12} + \frac{2}{12} = \frac{10}{12} + \frac{2}{12} = \frac{12}{12}$ $10 - 12 = 2$

blakk
$\frac{2}{12}$

A-8c

Flag Task

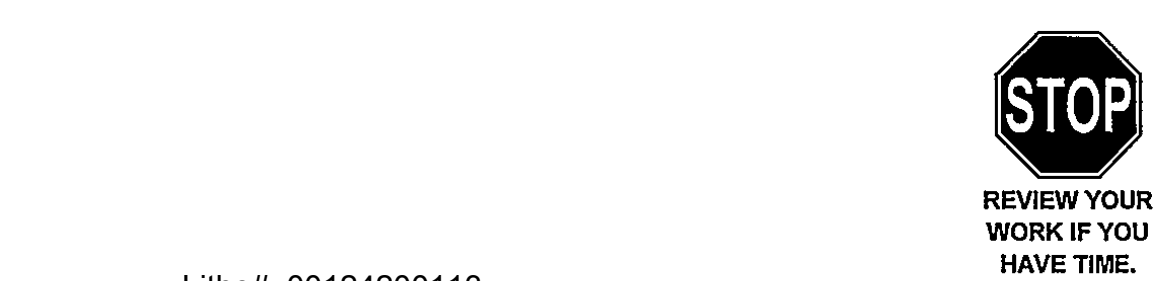
d. Nelson writes the equation:

$$\frac{1}{12} \times 4 = \frac{4}{12}$$

Explain how Nelson's equation shows the relationship between two colors of his flag.

Nelson is sharing blue relationship

blue
$\frac{4}{12}$



REVIEW YOUR WORK IF YOU HAVE TIME.

Litho#: 00124200113

Anchor 8 Litho 00124200113

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

Total Practice Points: 0

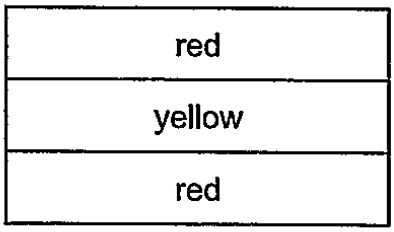
In Part A, the student does not multiply 5 by $\frac{2}{3}$ to get $\frac{10}{3}$ or any equivalencies (no credit for 4.NF.B.4). In Part B, the student does not write an equation (no credit for 4.NF.B.4c). In Part C, the student determines the black portion to be $\frac{2}{12}$ and labels which fraction represents the black portion (4.NF.B.3d). In Part D, the student does not explain the relationship between a blue section and a white section (no credit for MP2). The student attempts to write a series of equations that model the situation in Part C; $\frac{4}{12} + \frac{4}{12} = \frac{8}{12}$ and $\frac{1}{12} + \frac{1}{12} = \frac{2}{12}$ correctly model the beginning of the situation, but the equation $\frac{8}{12} + \frac{2}{12} = \frac{10}{12} + \frac{2}{12} = \frac{12}{12}$ is inaccurate because $\frac{8}{12} + \frac{2}{12}$ is equal to neither $\frac{10}{12} + \frac{2}{12}$ nor $\frac{12}{12}$. The equation 10 – 12 = 2 is also inaccurate (no credit for MP4).

Total Awarded Points: 1 out of 5

A-9a

Flag Task

Juliana makes a flag for social studies class. The flag is divided into equal sections, as shown in the sketch.



$3\frac{1}{3}$

a. Juliana uses a total of 5 square yards of fabric to make the flag. How many square yards of the fabric are red? Write a multiplication equation involving fractions to show your thinking.

$\frac{2}{3} \times \frac{5}{1}$ $\frac{10}{3}$ Because she needs 5 square yards of fabric for each section but there are 2 red out, of 3, so $\frac{2}{3} \times \frac{5}{1}$ $\frac{10}{3}$ or $3\frac{1}{3}$

$3\overline{)10}$ 3, -9, 1

b. Juliana realizes that there is a relationship between the fraction of the flag that is red and the fraction of the flag that is yellow.

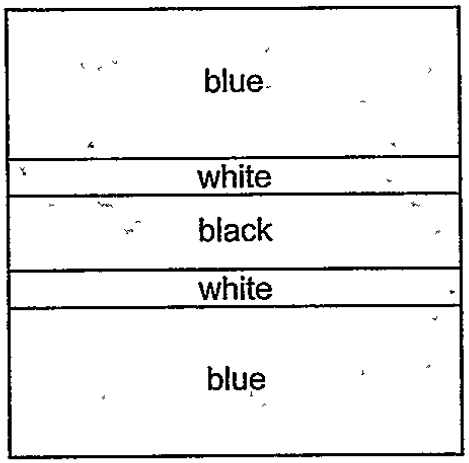
Write a multiplication equation showing how many times greater the fraction of the flag that is red is than the fraction of the flag that is yellow.

$\frac{1}{3} \times \frac{2}{3} = \frac{3}{3}$ or 1 whole Because there are 3 sections but 1 out of 3 is yellow, then two red out of 3 so multiply them to get 1 whole.

A-9b

Flag Task

Nelson makes a different flag. The flag is divided into sections, as shown in the sketch



Each blue section is $\frac{4}{12}$ of the whole flag. Each white section is $\frac{1}{12}$ of the whole flag.

c. Write and solve addition and/or subtraction equations involving fractions to determine what fraction of the whole flag is black

A-9c

Flag Task

d. Nelson writes the equation:

$$\frac{1}{12} \times 4 = \frac{4}{12}$$

Explain how Nelson's equation shows the relationship between two colors of his flag.

There is 12 sections but 1 of of 12 is a color so that is $\frac{1}{12}$ then there is 4 out of 12 of a diffrent color so thats how he got his equation.

STOP

REVIEW YOUR WORK IF YOU HAVE TIME.

Anchor 9 Litho 00134200113

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

Total Practice Points: 0

In Part A, the student multiplies $\frac{2}{3}$ by $\frac{5}{1}$ to get $\frac{10}{3}$ (4.NF.B.4). In Part B, the student writes the incorrect and inaccurate equation $\frac{1}{3} \times \frac{2}{3} = \frac{3}{3}$, and also fails to write either the equation $\frac{1}{3} \times 2 = \frac{2}{3}$ or the equation $\frac{5}{3} \times 2 = \frac{10}{3}$ (no credit for 4.NF.B.4c). The student does not attempt a response for Part C (no credit for 4.NF.B.3d; no credit for MP4). In Part D, the explanation of the relationship between the blue and the white sections is unclear (no credit for MP2).

Total Awarded Points: 1 out of 5

A-10a

Flag Task

Juliana makes a flag for social studies class. The flag is divided into equal sections, as shown in the sketch:

red 5 square yards
yellow 5 square yards
red 5 square yards

a. Juliana uses a total of 5 square yards of fabric to make the flag. How many square yards of the fabric are red? Write a multiplication equation involving fractions to show your thinking.

$\frac{1}{3} \times \frac{5}{1} = \frac{5}{3} = 1\frac{2}{3}$

$1\frac{2}{3}$ square yards are used for the red.

b. Juliana realizes that there is a relationship between the fraction of the flag that is red and the fraction of the flag that is yellow.

Write a multiplication equation showing how many times greater the fraction of the flag that is red is than the fraction of the flag that is yellow.

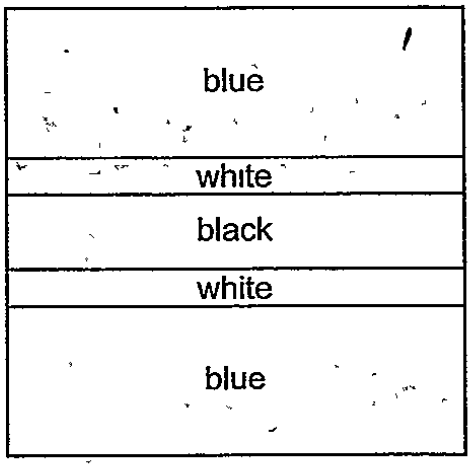
$\frac{2}{3} \times \frac{5}{1} = \frac{10}{3} = 3\frac{1}{3}$ ← yellow

$\frac{1}{3} \times \frac{5}{1} = \frac{5}{3} = 1\frac{2}{3}$ ← red yellow is greater because it has a higher whole number.

A-10b

Flag Task

Nelson makes a different flag. The flag is divided into sections, as shown in the sketch:



Each blue section is $\frac{4}{12}$ of the whole flag. Each white section is $\frac{1}{12}$ of the whole flag.

c. Write and solve addition and/or subtraction equations involving fractions to determine what fraction of the whole flag is black.

$\frac{4}{12} + \frac{1}{12} = \frac{5}{12}$ the section of black would be $\frac{5}{12}$ because

$\frac{4}{12} + \frac{1}{12} = \frac{5}{12}$

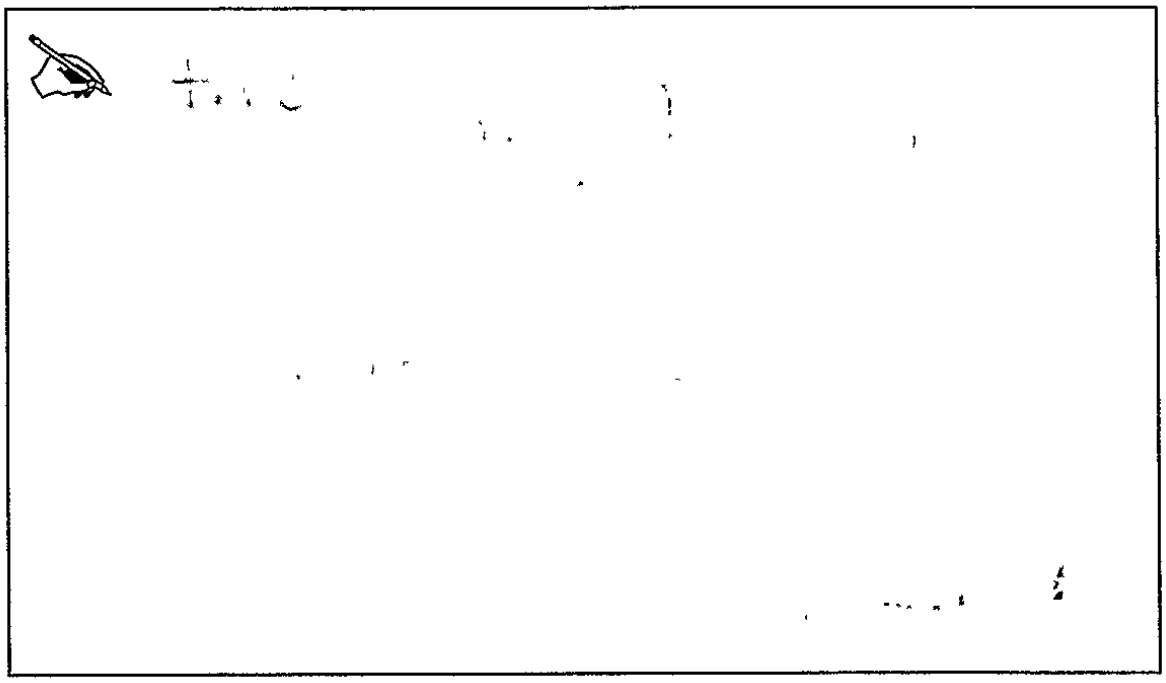
A-10c

Flag Task

d. Nelson writes the equation:

$$\frac{1}{12} \times 4 = \frac{4}{12}$$

Explain how Nelson's equation shows the relationship between two colors of his flag.



REVIEW YOUR WORK IF YOU HAVE TIME.

Litho#: 00044200113

Anchor 10 Litho 00044200113

Total Content Points: 0

Total Practice Points: 0

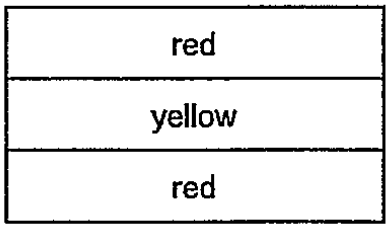
In Part A, the student multiplies $\frac{1}{3} \times \frac{5}{1}$ to get $\frac{5}{3}$, computing one stripe of the flag rather than two, leading to an incorrect answer. Although the student does multiply 5 by $\frac{2}{3}$ to get $\frac{10}{3}$ in Part B, the answer is incorrect because it is labeled as yellow rather than red (no credit for 4.NF.B.4). In Part B, the student does not write either of the equations $\frac{1}{3} \times 2 = \frac{2}{3}$ or $\frac{5}{3} \times 2 = \frac{10}{3}$, incorrectly states that the yellow section is larger than the red, and only compares the two sections to see which is larger, not to find how many times larger one fraction is than the other (no credit for 4.NF.B.4c). In Part C, the student incorrectly determines the black portion to be $\frac{5}{12}$ (no credit for 4.NF.B.3d). The student does not attempt Part D (no credit for MP2). In Part C, the student writes accurate equations $\left(\frac{4}{12} + \frac{1}{12} = \frac{5}{12}\right)$, but the equations do not model the situation (no credit for MP4).

Total Awarded Points: 0 out of 5

A-11a

Flag Task

Juliana makes a flag for social studies class. The flag is divided into equal sections, as shown in the sketch:



a. Juliana uses a total of 5 square yards of fabric to make the flag. How many square yards of the fabric are red? Write a multiplication equation involving fractions to show your thinking.

$\frac{3}{5} \times \frac{5}{1} = \frac{15}{5}$ 15 yards²

b. Juliana realizes that there is a relationship between the fraction of the flag that is red and the fraction of the flag that is yellow.

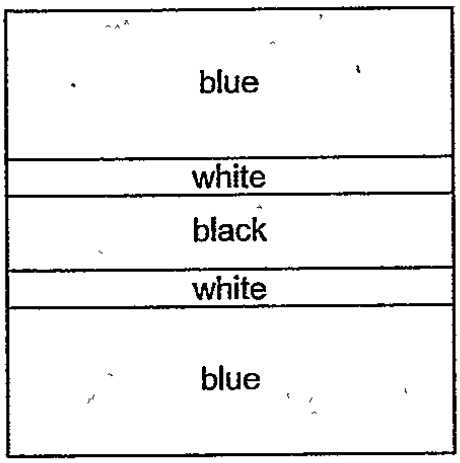
Write a multiplication equation showing how many times greater the fraction of the flag that is red is than the fraction of the flag that is yellow.

$\frac{3}{5} \times \frac{5}{1} = \frac{15}{5}$ ⊘ $\frac{2}{5} \times \frac{5}{1} = \frac{10}{5}$

A-11b

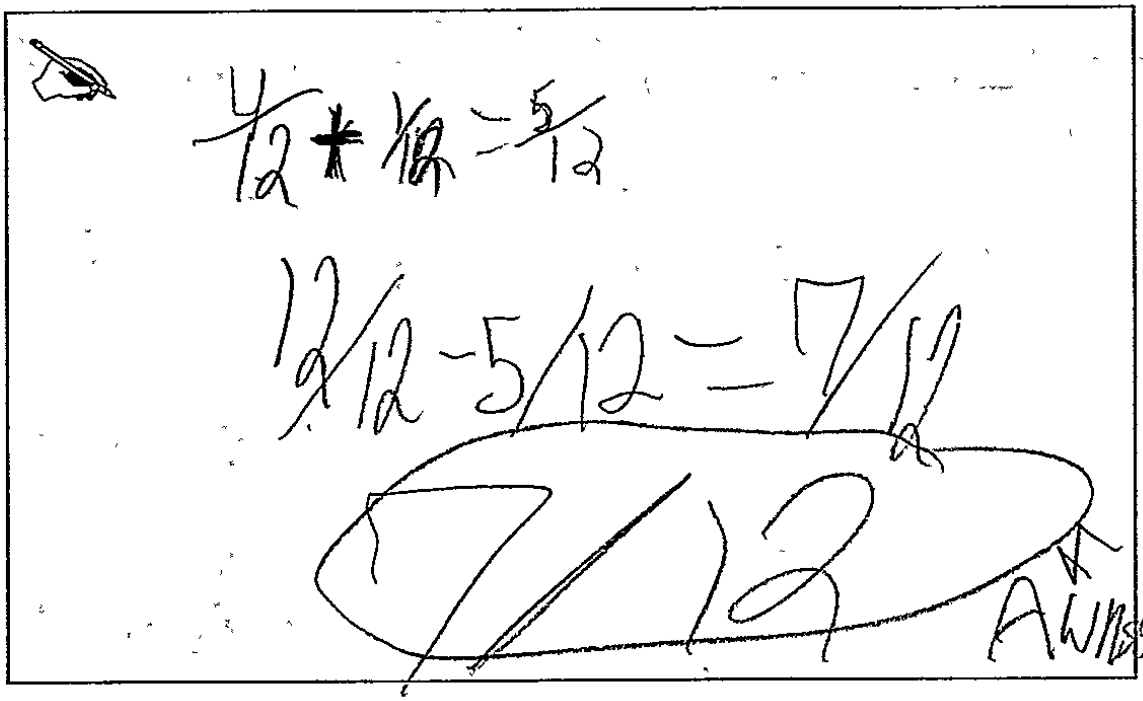
Flag Task

Nelson makes a different flag. The flag is divided into sections, as shown in the sketch



Each blue section is $\frac{4}{12}$ of the whole flag. Each white section is $\frac{1}{12}$ of the whole flag.

c. Write and solve addition and/or subtraction equations involving fractions to determine what fraction of the whole flag is black



A-11c

Flag Task

d. Nelson writes the equation:

$$\frac{1}{12} \times 4 = \frac{4}{12}$$

Explain how Nelson's equation shows the relationship between two colors of his flag.

1/12 represents the white on the flag and the 4/12 represents the blue that is how the fraction's relashon-ship in this problem works out.

STOP

REVIEW YOUR WORK IF YOU HAVE TIME.

Anchor 11 Litho 00204200110

Total Content Points: 0

Total Practice Points: 0

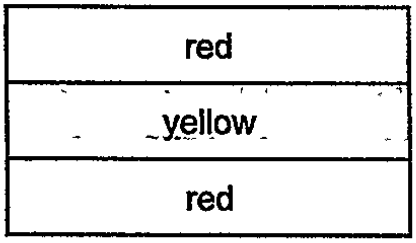
In Part A, the student multiplies 5 by $\frac{3}{5}$ instead of $\frac{2}{3}$ (no credit for 4.NF.B.4). In Part B, the student uses a greater than sign to form an inequality comparing two products instead of writing a multiplication equation showing how many times greater the red fraction of the flag is than the yellow fraction (no credit for 4.NF.B.4c). In Part C, the student incorrectly determines the black portion to be $\frac{7}{12}$ (no credit for 4.NF.B.3d). In Part D, the student identifies which fraction represents the white and which represents the blue, but does not explain the relationship between the blue and the white sections (no credit for MP2). In Part C, the student writes accurate equations $\left(\frac{4}{12}+\frac{1}{12}=\frac{5}{12}; \frac{12}{12}-\frac{5}{12}=\frac{7}{12}\right)$, but the equations do not model the situation (no credit for MP4).

Total Awarded Points: 0 out of 5

A-12a

Flag Task

Juliana makes a flag for social studies class. The flag is divided into equal sections, as shown in the sketch:



a. Juliana uses a total of 5 square yards of fabric to make the flag. How many square yards of the fabric are red? Write a multiplication equation involving fractions to show your thinking.

$5 \times 3 = 15$

b. Juliana realizes that there is a relationship between the fraction of the flag that is red and the fraction of the flag that is yellow.

Write a multiplication equation showing how many times greater the fraction of the flag that is red is than the fraction of the flag that is yellow.

10 red

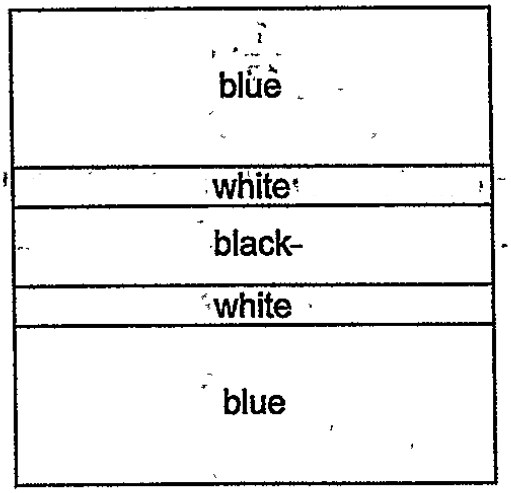
5 yellow. 5 More

Litho#: 00044200093

A-12b

Flag Task

Nelson makes a different flag. The flag is divided into sections, as shown in the sketch:



Each blue section is $\frac{4}{12}$ of the whole flag. Each white section is $\frac{1}{12}$ of the whole flag.

c. Write and solve addition and/or subtraction equations involving fractions to determine what fraction of the whole flag is black.

$\frac{4}{12}$ $\frac{4}{12}$

$\frac{1}{12}$ $\frac{1}{12}$

$\frac{5}{12}$

A-12c

Flag Task

d. Nelson writes the equation:

$$\frac{1}{12} \times 4 = \frac{4}{12}$$

Explain how Nelson's equation shows the relationship between two colors of his flag.

$\frac{1}{12} \times 4 = \frac{4}{12}$

$\frac{4}{12}$ is cut from his flag.

STOP

REVIEW YOUR WORK IF YOU HAVE TIME.

Anchor 12 Litho 00044200093

Total Content Points: 0

Total Practice Points: 0

In Part A, the student does not multiply by a fraction (no credit for 4.NF.B.4). The student does not write an equation in Part B (no credit for 4.NF.B.4c). In Part C, the student neither provides a correct answer nor clearly labels any fraction as black (no credit for 4.NF.B.3d). In Part D, the student does not explain the relationship between the blue and the white sections (no credit for MP2). In Part C the equations provided do not model the situation (no credit for MP4).

Total Awarded Points: 0 out of 5