



Math  
Released Item 2016

Grade 5

Bean Soup  
M01289

## Prompt

Dana is making bean soup. The recipe she has makes 10 servings and uses  $\frac{3}{4}$  of a pound of beans. How many total pounds of beans does she need to make 5 servings of soup?

She has  $\frac{1}{16}$  of a pound of beans in one container and  $\frac{1}{4}$  of a pound of beans in another container. How many more pounds of beans does Dana need to make the 5 servings of soup? Show your work or explain your answer.

Enter your answers and your work or explanation in the space provided.

# Rubric

Task is worth a total of 3 points.

| Bean Soup |   |
|-----------|---|
| Score     | Description   |
| <b>3</b>  | <p>Student response includes the following 3 elements:</p> <p><b>Computation point</b> = 1</p> <ul style="list-style-type: none"> <li>The student provides the correct number of beans for 5 servings of soup, <math>\frac{3}{8}</math>.</li> </ul> <p><b>Computation point</b> = 1</p> <ul style="list-style-type: none"> <li>The student provides the correct number of beans Dana needs to make 5 servings, <math>\frac{1}{16}</math></li> </ul> <p><b>Modeling point*</b> = 1</p> <ul style="list-style-type: none"> <li>Correct work or explanation shown</li> </ul> <p>Sample Student Response:</p> <p>"Dana needs <math>\frac{3}{4} \times \frac{1}{2} = \frac{3}{8}</math> pound of beans to make 5 servings of soup."</p> <p>"In the two containers she has <math>\frac{1}{16} + \frac{1}{4} = \frac{1}{16} + \frac{1}{4} \left(\frac{4}{4}\right) = \frac{1}{16} + \frac{4}{16} = \frac{5}{16}</math> pound of beans. She needs <math>\frac{3}{8} - \frac{5}{16} = \left(\frac{2}{2}\right)\frac{3}{8} - \frac{5}{16} = \frac{6}{16} - \frac{5}{16} = \frac{1}{16}</math> pound more beans to make 5 servings."</p> |
| <b>2</b>  | Student response includes 2 of the above elements.  |
| <b>1</b>  | Student response includes 1 of the above elements.  |
| <b>0</b>  | The response is incorrect or irrelevant.  |

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

# Anchor Set

## A1 – A8

With Annotations

Dana is making bean soup. The recipe she has makes 10 servings and uses  $\frac{3}{4}$  of a pound of beans. How many total pounds of beans does she need to make 5 servings of soup?

She has  $\frac{1}{16}$  of a pound of beans in one container and  $\frac{1}{4}$  of a pound of beans in another container. How many more pounds of beans does Dana need to make the 5 servings of soup? Show your work or explain your answer.

$$\frac{3}{4} \square \div 2 \square = \frac{3}{4} \square \times \frac{1}{2} \square = \frac{3}{8}$$

$$\frac{1}{16} + \frac{1}{4} = \frac{5}{16}$$

$$\frac{3}{8} = \frac{6}{16}$$

$$\frac{6}{16} - \frac{5}{16} \square = \frac{1}{16}$$

▼ Numbers

|   |   |   |   |
|---|---|---|---|
| 0 | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 |
| 8 | 9 | , | . |

▼ Arithmetic and Units

|   |     |    |   |
|---|-----|----|---|
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|---|-----|----|---|

## Annotation

### Anchor Paper 1

#### Score Point 3

The response receives full credit. The student includes all of the three required elements:

- The number of beans needed for 5 servings is correctly determined ( $\frac{3}{8}$ ).
- The number of beans Dana needs to make 5 servings is correctly determined ( $\frac{1}{16}$ ).
- The correct work or explanation is shown determining the amount of beans needed ( $\frac{3}{4} \times \frac{1}{2} = \frac{3}{8}$ ), calculating the amount of beans on hand

( $\frac{1}{16} + \frac{1}{4} = \frac{5}{16}$ ), and finding the remaining amount needed

( $\frac{6}{16} - \frac{5}{16} = \frac{1}{16}$ ).

Note: units are not necessary to receive credit for the correct value since the units are all pounds of beans.

Dana is making bean soup. The recipe she has makes 10 servings and uses  $\frac{3}{8}$  of a pound of beans. How many total pounds of beans does she need to make 5 servings of soup?

She has  $\frac{1}{16}$  of a pound of beans in one container and  $\frac{1}{4}$  of a pound of beans in another container. How many more pounds of beans does Dana need to make the 5 servings of soup? Show your work or explain your answer.

First you should divide,  $\frac{3}{8} \square \div 2 = \square \frac{3}{8}$ . Then, you should add  $\frac{1}{16} + \square \frac{1}{4} \square = \square \frac{5}{16}$ . Finally you subtract  $\frac{3}{8} - \frac{5}{16} \square = \frac{1}{16}$ . So, Dana needs  $\frac{1}{16}$  more pounds of beans to make 5 servings of soup.

## Annotation

### Anchor Paper 2

#### Score Point 3

The response receives full credit. The student includes all of the three required elements:

- The number of beans needed for 5 servings is correctly determined ( $\frac{3}{8}$ ).
- The number of beans Dana needs to make 5 servings is correctly determined ( $\frac{1}{16}$ ).
- The correct work or explanation is shown determining the amount of beans needed ( $\frac{3}{4} \div 2 = \frac{3}{8}$ ), calculating the amount of beans on hand

( $\frac{1}{16} + \frac{1}{4} = \frac{5}{16}$ ), and finding the remaining amount needed ( $\frac{3}{8} - \frac{5}{16} = \frac{1}{16}$ ).



Dana is making bean soup. The recipe she has makes 10 servings and uses  $\frac{3}{4}$  of a pound of beans. How many total pounds of beans does she need to make 5 servings of soup?

She has  $\frac{1}{16}$  of a pound of beans in one container and  $\frac{1}{4}$  of a pound of beans in another container. How many more pounds of beans does Dana need to make the 5 servings of soup? Show your work or explain your answer.

Calculator interface showing a row of buttons:  $\frac{1}{x}$ ,  $\frac{1}{y}$ ,  $\frac{1}{z}$ ,  $\times$ ,  $+$ ,  $-$ ,  $\times$ ,  $\div$ ,  $\frac{\square}{\square}$ ,  $\frac{\square}{\square}$ ,  $=$ ,  $<$ ,  $>$ . Below this row are buttons for  $(-)$  and  $?$ .

$\frac{3}{8}$  total pounds of beans  
 $\frac{1}{16}$  more pounds of beans

Numbers

0 1 2 3

4 5 6 7

8 9 , .

Arithmetic and Units

$\neq$  [.] \$  $^{\circ}$

## Annotation

### Anchor Paper 3

#### Score Point 2

The response receives partial credit. The student includes two of the three required elements:

- The number of beans needed for 5 servings is correctly determined ( $\frac{3}{8}$ ).
- The number of beans Dana needs to make 5 servings is correctly determined ( $\frac{1}{16}$ ).

The work or explanation is incomplete. A minimal amount of computational work is required to receive credit for this element.

Dana is making bean soup. The recipe she has makes 10 servings and uses  $\frac{3}{4}$  of a pound of beans. How many total pounds of beans does she need to make 5 servings of soup?

She has  $\frac{1}{10}$  of a pound of beans in one container and  $\frac{1}{5}$  of a pound of beans in another container. How many more pounds of beans does Dana need to make the 5 servings of soup? Show your work or explain your answer.

Dana needs  $\frac{1}{6}$  more pounds of beans to make 5 servings of soup because you 10 serving with  $\frac{3}{4}$  so half of it to make 5 servings. Half of  $\frac{3}{4}$  is  $\frac{3}{8}$ . Dana has  $\frac{5}{16}$  pounds of beans a together.  $\frac{3}{8}$  can be also  $\frac{6}{16}$  so  $\frac{6}{16} - \frac{5}{16}$

## Annotation

### Anchor Paper 4

#### Score Point 2

The response receives partial credit. The student includes two of the three required elements:

- The number of beans needed for 5 servings is correctly determined ( $\frac{3}{8}$ ).
- The correct work or explanation is shown determining the amount of beans needed (Half of  $\frac{3}{4}$  is  $\frac{3}{8}$ ), calculating the amount of beans on hand

(Dana has  $\frac{5}{16}$  pounds of beans a together), and showing the correct process to find the remaining amount needed, ( $\frac{6}{16} - \frac{5}{16}$ ).

The number of beans Dana needs to make 5 servings is incorrect ( $\frac{1}{6}$ ).

Dana is making bean soup. The recipe she has makes 10 servings and uses  $\frac{3}{4}$  of a pound of beans. How many total pounds of beans does she need to make 5 servings of soup?

She has  $\frac{1}{16}$  of a pound of beans in one container and  $\frac{1}{4}$  of a pound of beans in another container. How many more pounds of beans does Dana need to make the 5 servings of soup? Show your work or explain your answer.

Calculator interface showing a row of buttons:  $\frac{1}{x}$ ,  $\frac{1}{y}$ ,  $\frac{1}{z}$ ,  $\times$ ,  $+$ ,  $-$ ,  $\times$ ,  $\div$ ,  $\frac{\square}{\square}$ ,  $\frac{\square}{\square}$ ,  $=$ ,  $<$ ,  $>$ . Below this row are buttons for  $(-)$  and  $?$ .

$$\frac{1}{16}$$

Numbers

0 1 2 3

4 5 6 7

8 9 , .

Arithmetic and Units

$\neq$  [-] \$  $^{\circ}$

## Annotation

### Anchor Paper 5

#### Score Point 1

The response receives partial credit. The student includes one of the three required elements:

- The number of beans Dana needs to make 5 servings is correctly determined ( $\frac{1}{16}$ ).

The correct number of beans needed for 5 servings is not determined.

The work or explanation is incomplete since the number of beans for 5 servings and the number of beans on hand is not determined.

Dana is making bean soup. The recipe she has makes 10 servings and uses  $\frac{3}{4}$  of a pound of beans. How many total pounds of beans does she need to make 5 servings of soup?

She has  $\frac{1}{16}$  of a pound of beans in one container and  $\frac{1}{4}$  of a pound of beans in another container. How many more pounds of beans does Dana need to make the 5 servings of soup? Show your work or explain your answer.

$$\frac{1}{16} + \frac{1}{4} = \frac{5}{16} - \frac{1}{4} = \frac{1}{16}$$

$\frac{1}{16}$  is my awenser

## Annotation

### Anchor Paper 6

#### Score Point 1

The response receives partial credit. The student includes one of the three required elements:

- The number of beans Dana needs to make 5 servings is correctly determined ( $\frac{1}{16}$ ).

The correct number of beans needed for 5 servings is not determined.

The work or explanation shown is incomplete. Even though the amount of beans on hand ( $\frac{1}{16} + \frac{1}{4} = \frac{5}{16}$ ) as well as the number of beans Dana needs to make 5 servings are found the student does not find the number of additional beans needed to make 5 servings.



Dana is making bean soup. The recipe she has makes 10 servings and uses  $\frac{3}{4}$  of a pound of beans. How many total pounds of beans does she need to make 5 servings of soup?

She has  $\frac{1}{16}$  of a pound of beans in one container and  $\frac{1}{4}$  of a pound of beans in another container. How many more pounds of beans does Dana need to make the 5 servings of soup? Show your work or explain your answer.

Calculator interface showing basic operations:  $\frac{3}{4} \times \frac{4}{4} = \frac{12}{16}$ ,  $\frac{1}{4} \times \frac{4}{4} = \frac{4}{16}$ ,  $\frac{1}{16} + \frac{12}{16} + \frac{4}{16} = \frac{17}{16} = 1\frac{1}{16}$ , and  $1\frac{1}{16} - 5 = 3\frac{15}{16}$ .

$$\frac{3}{4} \times \frac{4}{4} = \frac{12}{16}$$
$$\frac{1}{4} \times \frac{4}{4} = \frac{4}{16}$$
$$\frac{1}{16} + \frac{12}{16} + \frac{4}{16} = \frac{17}{16} = 1\frac{1}{16}$$
$$1\frac{1}{16} - 5 = 3\frac{15}{16}$$

Numbers

0 1 2 3

4 5 6 7

8 9 , .

Arithmetic and Units

$\neq$  [·] \$ °

## Annotation

### Anchor Paper 7

#### Score Point 0

The response receives no credit. The student includes none of the three required elements.

The response incorrectly adds the number of beans needed for 10 servings and the amount of beans on hand ( $\frac{1}{16} + \frac{12}{16} + \frac{4}{16} = \frac{17}{16}$ ). The student

subtracts that amount from 5, which is also incorrect. The correct number of beans needed for 5 servings and the correct number of beans Dana needs to make 5 servings are not determined, and the correct work or explanation is not shown.

Dana is making bean soup. The recipe she has makes 10 servings and uses  $\frac{3}{4}$  of a pound of beans. How many total pounds of beans does she need to make 5 servings of soup?

She has  $\frac{1}{10}$  of a pound of beans in one container and  $\frac{1}{4}$  of a pound of beans in another container. How many more pounds of beans does Dana need to make the 5 servings of soup? Show your work or explain your answer.

$\left(\frac{3}{4}\right) \div 2 = \frac{1}{4}$  and a half so  $\frac{1}{4}$  and a half to make 5 servings

## Annotation

### Anchor Paper 8

#### Score Point 0

The response receives no credit. The student includes none of the three required elements.

It incorrectly calculates the number of beans needed for 5 servings of soup [ $(\frac{3}{4}) \div 2 = \frac{1}{4}$  and a half]. The correct number of beans needed for 5

servings and the correct number of beans Dana needs to make 5 servings are not determined, and the correct work or explanation is not shown.

# Practice Set P101 - P105

No Annotations Included

Dana is making bean soup. The recipe she has makes 10 servings and uses  $\frac{3}{4}$  of a pound of beans. How many total pounds of beans does she need to make 5 servings of soup?

She has  $\frac{1}{10}$  of a pound of beans in one container and  $\frac{1}{4}$  of a pound of beans in another container. How many more pounds of beans does Dana need to make the 5 servings of soup? Show your work or explain your answer.

$$\frac{3}{4} \square \div 2 = \frac{3}{8} \quad \frac{1}{16} + \frac{1}{4} \square = \frac{1}{10}$$

$\frac{1}{16}$  more pounds

▼ Numbers

|   |   |   |   |
|---|---|---|---|
| 0 | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 |
| 8 | 9 | , | . |

▼ Arithmetic and Units

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|---|-----|----|---|

Dana is making bean soup. The recipe she has makes 10 servings and uses  $\frac{3}{4}$  of a pound of beans. How many total pounds of beans does she need to make 5 servings of soup?

She has  $\frac{1}{16}$  of a pound of beans in one container and  $\frac{1}{4}$  of a pound of beans in another container. How many more pounds of beans does Dana need to make the 5 servings of soup? Show your work or explain your answer.

Dana is making a soup. The soup uses 10 servings . She needs to make 5 servings of soups. Dana needs to divide 10 servings into 5 servings.. You need to do  $10 \div 5 = 2$

▾ Numbers  
 0 1 2 3  
 4 5 6 7  
 8 9 , .  
 ▾ Arithmetic and Units  
 ≠ [·] \$ °

Dana is making bean soup. The recipe she has makes 10 servings and uses  $\frac{3}{4}$  of a pound of beans. How many total pounds of beans does she need to make 5 servings of soup?

She has  $\frac{1}{16}$  of a pound of beans in one container and  $\frac{1}{4}$  of a pound of beans in another container. How many more pounds of beans does Dana need to make the 5 servings of soup? Show your work or explain your answer.

She needs  $\frac{3}{8}$  pond a beans to make 5 servings of soop. She needs  $\frac{1}{16}$  a pound of bean more to make 5 servings because she currantly has  $\frac{5}{16}$  a pound of beans and needs  $\frac{6}{16}$  a pond of beans to make 5 servings.



Dana is making bean soup. The recipe she has makes 10 servings and uses  $\frac{3}{4}$  of a pound of beans. How many total pounds of beans does she need to make 5 servings of soup?

She has  $\frac{1}{16}$  of a pound of beans in one container and  $\frac{1}{4}$  of a pound of beans in another container. How many more pounds of beans does Dana need to make the 5 servings of soup? Show your work or explain your answer.

1. 3 eighths

2.  $\frac{3}{16}$

Dana is making bean soup. The recipe she has makes 10 servings and uses  $\frac{3}{4}$  of a pound of beans. How many total pounds of beans does she need to make 5 servings of soup?

She has  $\frac{1}{36}$  of a pound of beans in one container and  $\frac{1}{4}$  of a pound of beans in another container. How many more pounds of beans does Dana need to make the 5 servings of soup? Show your work or explain your answer.

$\frac{3}{8}$   
beans

$\frac{1}{16}$

## Practice Set

| Paper | Score |
|-------|-------|
| P101  | 2     |
| P102  | 0     |
| P103  | 3     |
| P104  | 1     |
| P105  | 2     |