New York State Testing Program

2017 Common Core

Mathematics Test

Grade 5

Scoring Leader Materials

Training Set

Grade 5 Mathematics Reference Sheet

CONVERSIONS

1 mile = 5,280 feet
1 mile = 1,760 yards

1 pound = 16 ounces
1 ton = 2,000 pounds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 liter = 1,000 cubic centimeters

FORMULAS

Right Rectangular Prism	$V = Bh$ or $V = lwh$

2-Point Holistic Rubric

2 Point	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 Point*	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:

3 Point	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. 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
2 Point	A two-point response demonstrates a partial understanding of the mathematical concepts and/or procedures in the task. 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
1 Point	A one-point response demonstrates only a limited understanding of the mathematical concepts and/or procedures in the task. 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 Point*	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).

2017 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 shows the work in other than a designated "Show your work" or "Explain" area, that work should still be scored.

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. If students are directed to show work, a correct answer with **no** work shown receives **no** credit.

4. 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.

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

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

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

8. If a response shows repeated occurrences of the same conceptual error within a question, the conceptual error should **not** be considered more than once in gauging the demonstrated level of understanding.

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

10. 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.

46 Harry's fitness trainer recommends that Harry drink 8 fluid ounces of water 8 times a day. Harry has a water bottle that holds $1\frac{1}{4}$ pints of water when filled. Today, he has filled the water bottle three times and drank all of the water each time. Harry claims that he drank the total amount of water recommended by his fitness trainer. Explain why Harry's claim is not true.

Answer

EXEMPLARY RESPONSE

46 Harry's fitness trainer recommends that Harry drink 8 fluid ounces of water 8 times a day. Harry has a water bottle that holds $1\frac{1}{4}$ pints of water when filled. Today, he has filled the water bottle three times and drank all of the water each time. Harry claims that he drank the total amount of water recommended by his fitness trainer. Explain why Harry's claim is not true.

Recommended amount of water: 8oz. × 8 times a day = 64 fl. oz. a day

One pint equals 16 ounces: 64 ÷ 16 = 4 pints recommended per day

Harry drinks 1¼ pints of water three times: 1¼ × 3 = 3¾ pints of water

Harry should drink an additional ¼ pint of water

Or other valid response

46 Harry's fitness trainer recommends that Harry drink 8 fluid ounces of water 8 times a day. Harry has a water bottle that holds $1\frac{1}{4}$ pints of water when filled. Today, he has filled the water bottle three times and drank all of the water each time. Harry claims that he drank the total amount of water recommended by his fitness trainer. Explain why Harry's claim is not true.

Answer

Harry's claim is not true because eight fluid oz 8 times a day is 4 pints. If he drank $1\frac{1}{4}$ pints 3 times he only drank $3\frac{3}{4}$ pt, he needs to drink $\frac{1}{4}$ of a pint more of water.

8 fl oz 8 x = 8 cup = 4 pt

8 fl oz = 1 cup

$1\frac{1}{4}$
$1\frac{1}{4}$
$+ 1\frac{1}{4}$
$3\frac{3}{4}$ pt

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The total number of pints recommended per day is correctly identified and compared to the number of pints that Harry drank in a day. This response is complete and correct using mathematically sound procedures.

GUIDE PAPER 2

46

Harry's fitness trainer recommends that Harry drink 8 fluid ounces of water 8 times a day. Harry has a water bottle that holds $1\frac{1}{4}$ pints of water when filled. Today, he has filled the water bottle three times and drank all of the water each time. Harry claims that he drank the total amount of water recommended by his fitness trainer. Explain why Harry's claim is not true.

Answer Because he would only have drunk 60 ounces of water not the 64 he needs.

1 pint = 16 fl oz

$16 \times 3 = 48$

$48 + 12 = 60$

$16 \div 4 = 4$

$4 \times 3 = 12$

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The total number of fluid ounces recommended to drink per day is correctly identified and appropriately compared to the total number of actual fluid ounces Harry drank in a day. This response is complete and correct using mathematically sound procedures.

GUIDE PAPER 3

46

Harry's fitness trainer recommends that Harry drink 8 fluid ounces of water 8 times a day. Harry has a water bottle that holds $1\frac{1}{4}$ pints of water when filled. Today, he has filled the water bottle three times and drank all of the water each time. Harry claims that he drank the total amount of water recommended by his fitness trainer. Explain why Harry's claim is not true.

Answer

No, because he drank 3 3/4 pints of water not 4, ~~with~~ ~~what~~ which his trainer reccomends.

1/4 x 3 = 3/4

1 1/4 x 3 = 3 3/4

8 fl x 8 = 64 fl

8 | 64

8 cups

4 pt

1

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The total number of pints recommended per day is correctly identified and correctly compared to the number of pints that Harry drank in one day. This response is complete and correct using mathematically sound procedures.

GUIDE PAPER 4

46

Harry's fitness trainer recommends that Harry drink 8 fluid ounces of water 8 times a day. Harry has a water bottle that holds $1\frac{1}{4}$ pints of water when filled. Today, he has filled the water bottle three times and drank all of the water each time. Harry claims that he drank the total amount of water recommended by his fitness trainer. Explain why Harry's claim is not true.

Answer

Harry's claim is not true because Harry's fitness trainer wanted him to drink 64 flud ounces, or 8 pints of water each day. $1\frac{1}{4}$ pints $\times 3 = 3\frac{3}{4}$ pints, which is not enough water. Therefore, Harry's claim is not true.

Must drink - 64 fl oz. = 8 pints

He drank - $3\frac{3}{4}$ pint

$\frac{5}{4} \cdot \frac{3}{1} = \frac{15}{4}$

$4\overline{)15}$ $3\frac{3}{4}$

-12

3

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The total number of fluid ounces recommended per day and the total number of pints that Harry drank in a day is correctly identified; however, there is an incorrect conversion of fluid ounces to pints for the recommended daily amount. The response correctly addresses only some elements of the task.

GUIDE PAPER 5

46

Harry's fitness trainer recommends that Harry drink 8 fluid ounces of water 8 times a day. Harry has a water bottle that holds $1\frac{1}{4}$ pints of water when filled. Today, he has filled the water bottle three times and drank all of the water each time. Harry claims that he drank the total amount of water recommended by his fitness trainer. Explain why Harry's claim is not true.

Answer

Harry's claim is incorrect, because his fitness trainer said to drink 8 fluid ounces 8 times a day, which would be 64 and he only got 48 fluid ounces.

$8 \times 8 = 64$

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

$\frac{5}{4} \times \frac{3}{1} = \frac{15}{4} = 3\frac{3}{4}$

3 pints = 6 cups

6 cups = 48 fluid ounces

$8 \times 6 = 48$

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The total number of fluid ounces recommended per day is correctly identified; however, the total fluid ounces that Harry drank in one day is not identified correctly, and only 3 pints are accounted for and not the additional ¾ of a pint. This response correctly addresses only some elements of the task.

GUIDE PAPER 6

46

Harry's fitness trainer recommends that Harry drink 8 fluid ounces of water 8 times a day. Harry has a water bottle that holds $1\frac{1}{4}$ pints of water when filled. Today, he has filled the water bottle three times and drank all of the water each time. Harry claims that he drank the total amount of water recommended by his fitness trainer. Explain why Harry's claim is not true.

Answer

If 1 pint is 2 cups, 3 times it's 6 cups. But 3 one-fourths is $\frac{3}{4}$. $6+\frac{3}{4}=6\frac{3}{4}$. However $6\frac{3}{4}$ in fluid ounces is 54 fluid ounces. But he needs 64 fluid ounces. $54<64$.

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The total fluid ounces recommended per day is correctly identified and a correct comparison is made between what Harry drank and the recommended amount; however, the actual amount of water Harry consumed is incorrect. This response correctly addresses only some elements of the task.

GUIDE PAPER 7

46

Harry's fitness trainer recommends that Harry drink 8 fluid ounces of water 8 times a day. Harry has a water bottle that holds $1\frac{1}{4}$ pints of water when filled. Today, he has filled the water bottle three times and drank all of the water each time. Harry claims that he drank the total amount of water recommended by his fitness trainer. Explain why Harry's claim is not true.

Answer

Harrys claim is not true. He is not true because I multiplyed $3 \times 1\frac{1}{4}$ and got $3\frac{1}{4}$.

$$\begin{array}{r} 1\frac{1}{4} \\ \times\ 3 \\ \hline 3\frac{1}{4} \end{array} \qquad 3 \div 1\frac{1}{4} = 33 \div 2$$

Score Point 0 (out of 2 points)

Holistically, this response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Although the number of pints that Harry drank in one day is identified, it is incorrect. The recommended amount is not addressed and no comparison is made.

46

Harry's fitness trainer recommends that Harry drink 8 fluid ounces of water 8 times a day. Harry has a water bottle that holds $1\frac{1}{4}$ pints of water when filled. Today, he has filled the water bottle three times and drank all of the water each time. Harry claims that he drank the total amount of water recommended by his fitness trainer. Explain why Harry's claim is not true.

Answer

Harry's claim is not true because he drank less than his doctor had told him he had to. 1 pint equals 2 cups. 1 cup = 8 fluid ounces. Harry drank $3\frac{1}{4}$ pints of water. Harry was supposed to have 1 cup 8 times a day

1 cup = 8 fluid ounces

1 pint = 2 cups

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The response copies some of the relevant conversions from the reference sheet, but the amount of water Harry drank is incorrectly identified and the recommended amount is not calculated.

47

Rodney bought a 25-pound bag of dog food. His dog ate $10\frac{2}{5}$ pounds of the food in the first month and $10\frac{4}{5}$ pounds of the food in the second month. How much dog food, in pounds, was remaining in the bag at the end of the two months?

Show your work.

Answer _____ pounds

EXEMPLARY RESPONSE

47

Rodney bought a 25-pound bag of dog food. His dog ate $10\frac{2}{5}$ pounds of the food in the first month and $10\frac{4}{5}$ pounds of the food in the second month. How much dog food, in pounds, was remaining in the bag at the end of the two months?

Show your work.

$10^{2}/_{5} + 10^{4}/_{5} = 20^{6}/_{5}$ or $21^{1}/_{5}$

$25 - 21^{1}/_{5} = 24^{5}/_{5} - 21^{1}/_{5} = 3^{4}/_{5}$

Or other valid response

Answer $3^{4}/_{5}$ pounds

47

Rodney bought a 25-pound bag of dog food. His dog ate $10\frac{2}{5}$ pounds of the food in the first month and $10\frac{4}{5}$ pounds of the food in the second month. How much dog food, in pounds, was remaining in the bag at the end of the two months?

Show your work.

$10\frac{2}{5} + 10\frac{4}{5} = 20\frac{6}{5} = 21\frac{1}{5}$

$25 - 21\frac{1}{5} =$

$\frac{125}{5} - \frac{106}{5} = \frac{19}{5} = 3\frac{4}{5}$

Answer $3\frac{4}{5}$ pounds

Score Point 2 (out of 2 points)

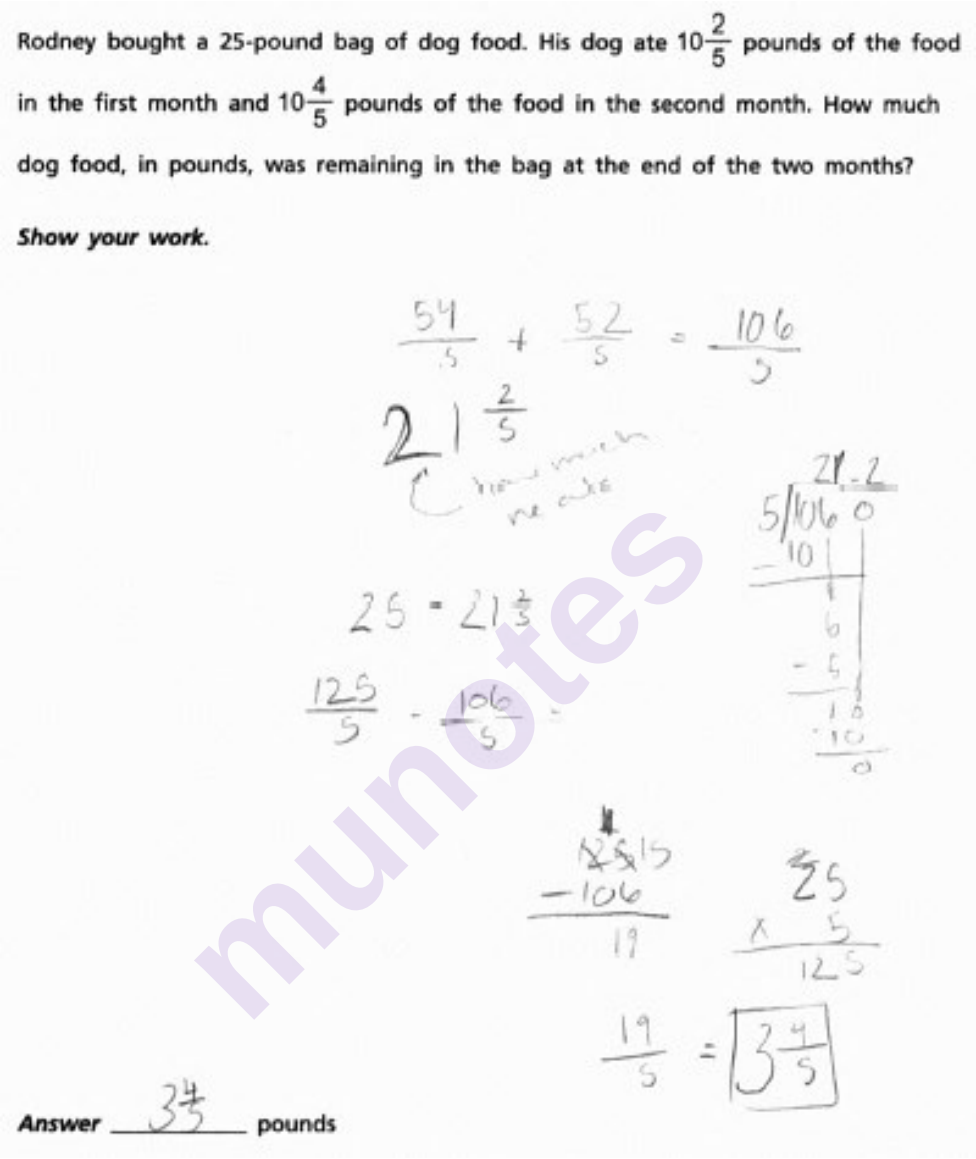
This response demonstrates a thorough understanding of the mathematical concepts in the task. The total amount of dog food consumed for the two months is correctly calculated and the difference between the amount purchased and the amount consumed is correctly determined using mathematically sound procedures.

GUIDE PAPER 2

47

Rodney bought a 25-pound bag of dog food. His dog ate $10\frac{2}{5}$ pounds of the food in the first month and $10\frac{4}{5}$ pounds of the food in the second month. How much dog food, in pounds, was remaining in the bag at the end of the two months?

Show your work.



Answer 3 4/5 pounds

Score Point 2 (out of 2 points)

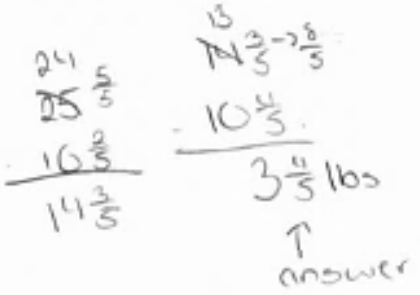
This response demonstrates a thorough understanding of the mathematical concepts in the task. The total amount of dog food consumed for the two months is correctly calculated and the difference between the amount purchased and the amount consumed is correctly determined using mathematically sound procedures.

GUIDE PAPER 3

47

Rodney bought a 25-pound bag of dog food. His dog ate $10\frac{2}{5}$ pounds of the food in the first month and $10\frac{4}{5}$ pounds of the food in the second month. How much dog food, in pounds, was remaining in the bag at the end of the two months?

Show your work.



Answer $3\frac{1}{5}$ pounds

Score Point 2 (out of 2 points)

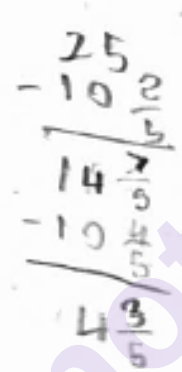
This response demonstrates a thorough understanding of the mathematical concepts in the task. The total amount of dog food consumed for the two months is correctly calculated and the difference between the amount purchased and the amount consumed is correctly determined using mathematically sound procedures.

GUIDE PAPER 4

47

Rodney bought a 25-pound bag of dog food. His dog ate $10\frac{2}{5}$ pounds of the food in the first month and $10\frac{4}{5}$ pounds of the food in the second month. How much dog food, in pounds, was remaining in the bag at the end of the two months?

Show your work.



Answer 4 3/5 pounds

Score Point 1 (out of 2 points)

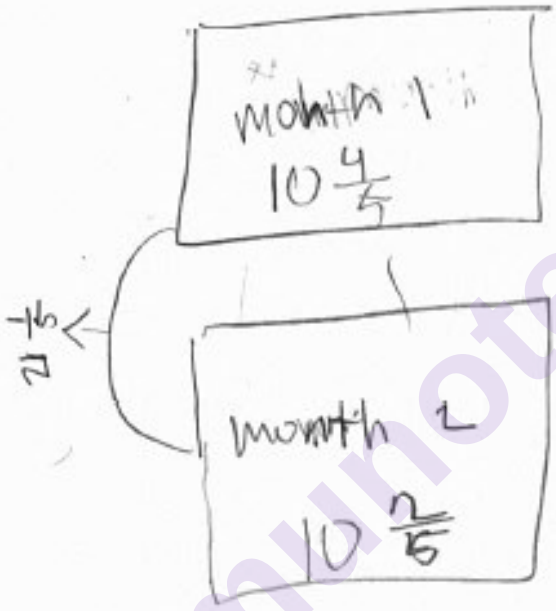
This response demonstrates only a partial understanding of the mathematical concepts in the task. The response starts with the total amount of dog food purchased and subtracts the amount consumed in the first month and then the amount consumed in the second month; however, a calculation error occurs in the subtraction operation for the first month. This response contains an incorrect solution but applies a mathematically appropriate process.

GUIDE PAPER 5

47

Rodney bought a 25-pound bag of dog food. His dog ate $10\frac{2}{5}$ pounds of the food in the first month and $10\frac{4}{5}$ pounds of the food in the second month. How much dog food, in pounds, was remaining in the bag at the end of the two months?

Show your work.



Answer $21\frac{1}{5}$ pounds

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The total amount of dog food consumed during the two months is correctly determined; however, the difference between the amount purchased and the amount consumed is not addressed. This response correctly addresses only some elements of the task.

GUIDE PAPER 6

47

Rodney bought a 25-pound bag of dog food. His dog ate $10\frac{2}{5}$ pounds of the food in the first month and $10\frac{4}{5}$ pounds of the food in the second month. How much dog food, in pounds, was remaining in the bag at the end of the two months?

Show your work.

$10\frac{2}{5}$

$+10\frac{4}{5}$

$20\frac{6}{5} = 21\frac{1}{5}$

Answer $3\frac{4}{5}$ pounds

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The total amount of dog food consumed during the two months is appropriately determined; however, the work to determine the difference between the purchased amount and consumed amount is not provided. This response contains the correct solution but required work is incomplete.

GUIDE PAPER 7

47

Rodney bought a 25-pound bag of dog food. His dog ate $10\frac{2}{5}$ pounds of the food in the first month and $10\frac{4}{5}$ pounds of the food in the second month. How much dog food, in pounds, was remaining in the bag at the end of the two months?

Show your work.

$$10\frac{4}{5}$$
$$-\ 10\frac{2}{5}$$
$$\frac{2}{5}$$

Answer $\frac{2}{5}$ pounds

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The difference between the amounts of dog food consumed in the two months is irrelevant to the task.

47

Rodney bought a 25-pound bag of dog food. His dog ate $10\frac{2}{5}$ pounds of the food in the first month and $10\frac{4}{5}$ pounds of the food in the second month. How much dog food, in pounds, was remaining in the bag at the end of the two months?

Show your work.

Answer $3\frac{4}{5}$ pounds

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Although the correct solution is provided, as per Scoring Policy #3, if students are directed to show work, a correct answer with no work shown receives no credit.

48 Sixteen students in a drama club want to attend a play. The ticket price is $35 for each student, and the transportation and meals for everyone will cost $960.

To pay for the trip, the students design sweatshirts to sell for a profit of $19 per sweatshirt. If each student sells the same number of sweatshirts, how many sweatshirts must each student sell so that there will be enough money to pay for the entire cost of the trip?

Show your work.

Answer _____ sweatshirts

EXEMPLARY RESPONSE

48

Sixteen students in a drama club want to attend a play. The ticket price is $35 for each student, and the transportation and meals for everyone will cost $960.

To pay for the trip, the students design sweatshirts to sell for a profit of $19 per sweatshirt. If each student sells the same number of sweatshirts, how many sweatshirts must each student sell so that there will be enough money to pay for the entire cost of the trip?

Show your work.

$960 + 16 ($35) = Cost of trip for all 16 students

$960 + $560 = $1520 cost of trip for all 16 students

$1520 ÷ 16 = $95 cost per student

$95 ÷ $19 = 5 sweatshirts each student must sell

Or other valid response

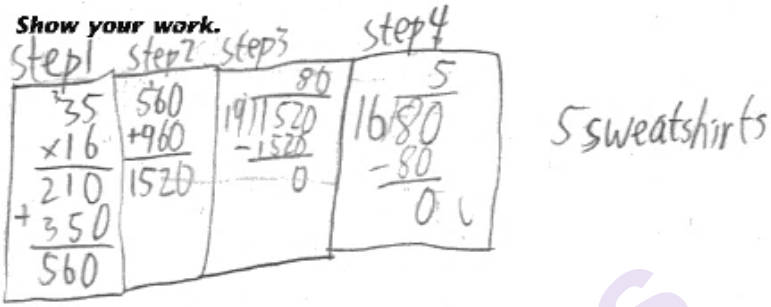
Answer 5 sweatshirts

48

Sixteen students in a drama club want to attend a play. The ticket price is $35 for each student, and the transportation and meals for everyone will cost $960.

To pay for the trip, the students design sweatshirts to sell for a profit of $19 per sweatshirt. If each student sells the same number of sweatshirts, how many sweatshirts must each student sell so that there will be enough money to pay for the entire cost of the trip?

Show your work.



Answer 5 sweatshirts

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The total amount of money needed to attend the play is correctly calculated and used to correctly determine the number of sweatshirts that each student needs to sell using mathematically sound procedures.

GUIDE PAPER 2

48

Sixteen students in a drama club want to attend a play. The ticket price is $35 for each student, and the transportation and meals for everyone will cost $960.

To pay for the trip, the students design sweatshirts to sell for a profit of $19 per sweatshirt. If each student sells the same number of sweatshirts, how many sweatshirts must each student sell so that there will be enough money to pay for the entire cost of the trip?

Show your work.

$35 × 16 = 210 + 350 = $560

$960 + 560 = $1520

1520 − 144 = 88 − 80 = 0

95 ÷ 19 = 5

Answer 5 sweatshirts each

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The total amount of money needed to attend the play is correctly calculated and used to determine the correct number of sweatshirts that each student needs to sell.

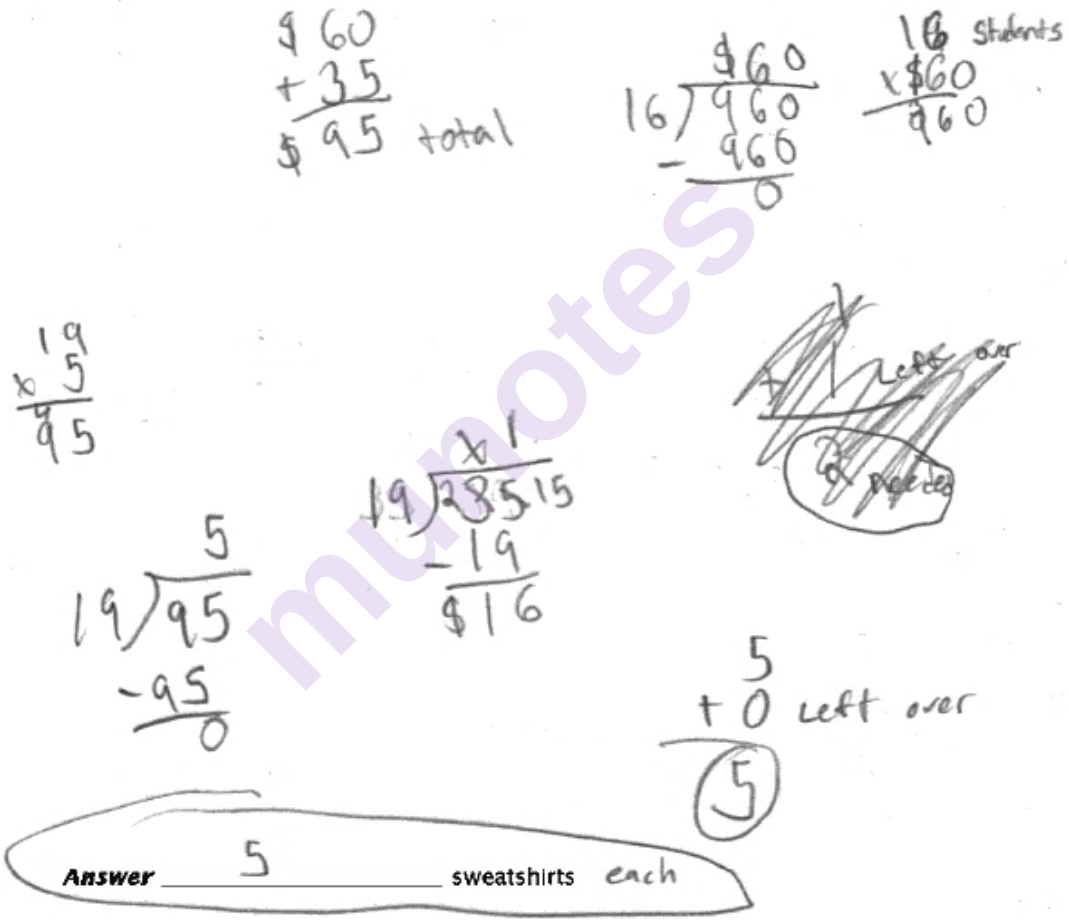
GUIDE PAPER 3

48

Sixteen students in a drama club want to attend a play. The ticket price is $35 for each student, and the transportation and meals for everyone will cost $960.

To pay for the trip, the students design sweatshirts to sell for a profit of $19 per sweatshirt. If each student sells the same number of sweatshirts, how many sweatshirts must each student sell so that there will be enough money to pay for the entire cost of the trip?

Show your work.



Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The total cost for transportation and meals is correctly divided among all students and that amount is then added to the price of one ticket to determine the total cost per student. The cost for one student is correctly divided by the profit from one sweatshirt to determine the correct number of sweatshirts that each student must sell.

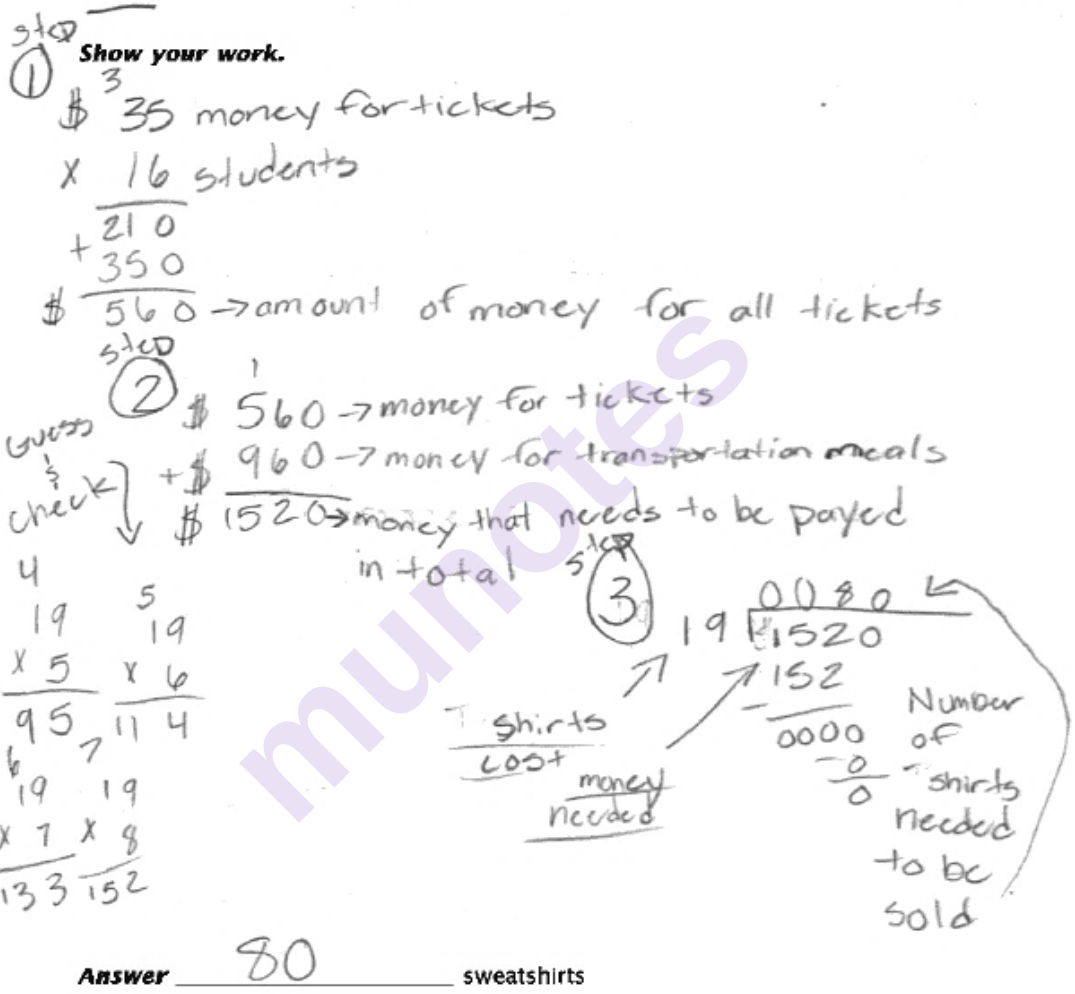
GUIDE PAPER 4

48

Sixteen students in a drama club want to attend a play. The ticket price is $35 for each student, and the transportation and meals for everyone will cost $960.

To pay for the trip, the students design sweatshirts to sell for a profit of $19 per sweatshirt. If each student sells the same number of sweatshirts, how many sweatshirts must each student sell so that there will be enough money to pay for the entire cost of the trip?

Show your work.



Answer 80 sweatshirts

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The total amount of money needed for all students to attend the play and the total number of sweatshirts that need to be sold by all students is correctly calculated; however, the number of sweatshirts that need to be sold by one student is not determined. This response correctly addresses only some elements of the task.

GUIDE PAPER 5

48

16 Sixteen students in a drama club want to attend a play. The ticket price is $35 for each student, and the transportation and meals for everyone will cost $960.

To pay for the trip, the students design sweatshirts to sell for a profit of $19 per sweatshirt. If each student sells the same number of sweatshirts, how many sweatshirts must each student sell so that there will be enough money to pay for the entire cost of the trip?

Show your work.

16
×35
80
480
$560 → tickets
+ $960 → transportation & meals
$1,520 → Total cost

Answer _____ sweatshirts

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The total amount of money needed for all students to attend the play is correctly calculated; however, the number of sweatshirts that need to be sold is not addressed. This response correctly addresses only some elements of the task.

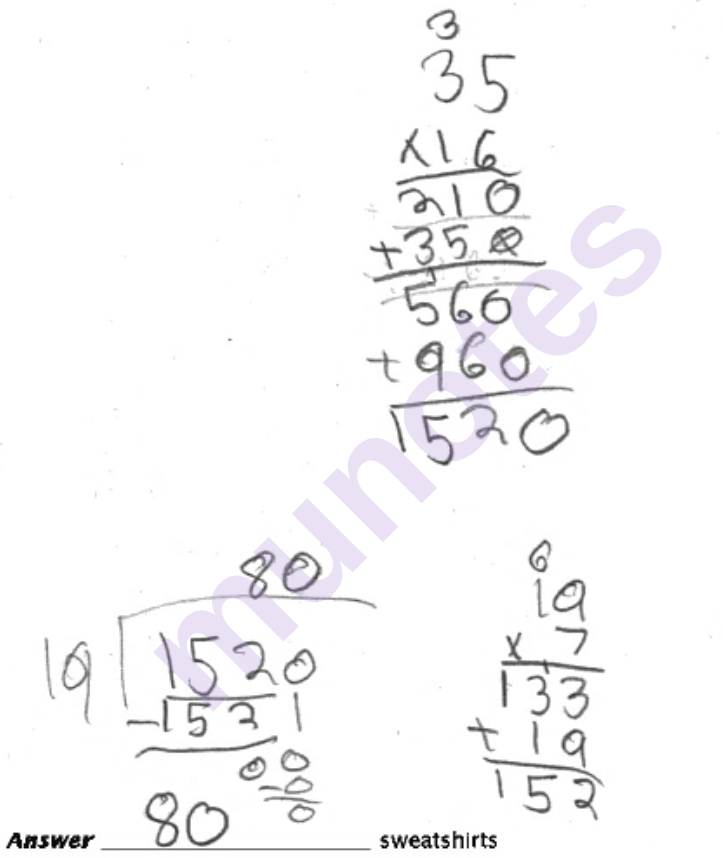
GUIDE PAPER 6

48

Sixteen students in a drama club want to attend a play. The ticket price is $35 for each student, and the transportation and meals for everyone will cost $960.

To pay for the trip, the students design sweatshirts to sell for a profit of $19 per sweatshirt. If each student sells the same number of sweatshirts, how many sweatshirts must each student sell so that there will be enough money to pay for the entire cost of the trip?

Show your work.



Answer 80 sweatshirts

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The total amount of money needed for all students to attend the play and the total number of sweatshirts that need to be sold by all students is correctly calculated; however, the number of sweatshirts that need to be sold by one student is not determined. This response correctly addresses only some elements of the task.

GUIDE PAPER 7

48

Sixteen students in a drama club want to attend a play. The ticket price is $35 for each student, and the transportation and meals for everyone will cost $960.

To pay for the trip, the students design sweatshirts to sell for a profit of $19 per sweatshirt. If each student sells the same number of sweatshirts, how many sweatshirts must each student sell so that there will be enough money to pay for the entire cost of the trip?

Show your work.

50
19 | 960
-95
10
-0
10

3 5 4
19 19 19
x 4 x 6 x 5
76 114 95

Answer 50 sweatshirts

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The work shown is incoherent and incorrect.

48

Sixteen students in a drama club want to attend a play. The ticket price is $35 for each student, and the transportation and meals for everyone will cost $960.

To pay for the trip, the students design sweatshirts to sell for a profit of $19 per sweatshirt. If each student sells the same number of sweatshirts, how many sweatshirts must each student sell so that there will be enough money to pay for the entire cost of the trip?

Show your work.

16 × 35 = 560

960 × 16 = 15,360

15,360 + 560 = 15,920

15920 ÷ 16 = 995

Answer 995 sweatshirts

Score Point 0 (out of 2 points)

Holistically, this response is not sufficient to demonstrate even a limited understanding of the concepts in the task. Although the ticket price is correctly multiplied by the 16 students, the transportation and meal cost is also multiplied by 16. This incorrect total is divided by 16 to determine the cost per student; however, it is provided as the solution. The number of sweatshirts to be sold is not addressed.

49

Jessie set up a lemonade stand for three days.

- On Saturday, she sold $10\frac{2}{3}$ gallons of lemonade.
- On Sunday, she sold $3\frac{1}{3}$ gallons more than she sold on Saturday.
- On Monday, she sold $2\frac{2}{3}$ gallons less than she sold on Sunday.

How many gallons of lemonade did Jessie sell on Monday?

Show your work.

Answer _____ gallons

EXEMPLARY RESPONSE

49

Jessie set up a lemonade stand for three days.

- On Saturday, she sold $10\frac{2}{3}$ gallons of lemonade.
- On Sunday, she sold $3\frac{1}{3}$ gallons more than she sold on Saturday.
- On Monday, she sold $2\frac{2}{3}$ gallons less than she sold on Sunday.

How many gallons of lemonade did Jessie sell on Monday?

Show your work.

Lemonade sold on Saturday: $10\frac{2}{3}$ gallons

Lemonade sold on Sunday: $10\frac{2}{3} + 3\frac{1}{3} = 13\frac{3}{3}$ gallons = 14 gallons

Lemonade sold on Monday: $13\frac{3}{3} - 2\frac{2}{3} = 11\frac{1}{3}$ gallons

Or other valid response

Answer $11\frac{1}{3}$ gallons

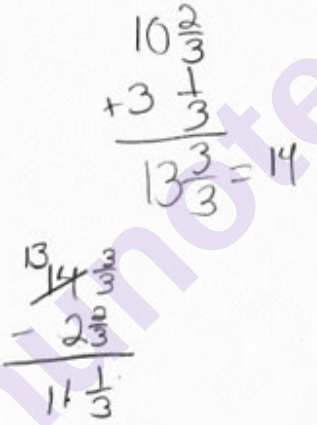
49

Jessie set up a lemonade stand for three days.

- On Saturday, she sold $10\frac{2}{3}$ gallons of lemonade.
- On Sunday, she sold $3\frac{1}{3}$ gallons more than she sold on Saturday.
- On Monday, she sold $2\frac{2}{3}$ gallons less than she sold on Sunday.

How many gallons of lemonade did Jessie sell on Monday?

Show your work.



Answer $11\frac{1}{3}$ gallons

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The number of gallons of lemonade sold on Monday is calculated correctly using mathematically sound procedures.

GUIDE PAPER 2

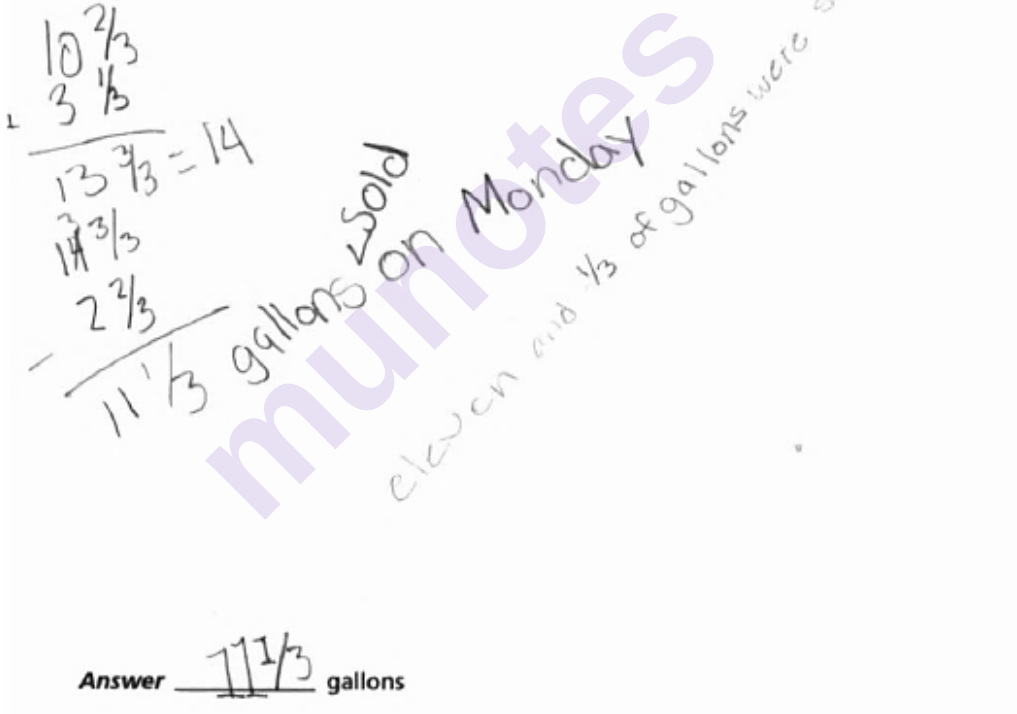
49

Jessie set up a lemonade stand for three days.

- On Saturday, she sold $10\frac{2}{3}$ gallons of lemonade.
- On Sunday, she sold $3\frac{1}{3}$ gallons more than she sold on Saturday.
- On Monday, she sold $2\frac{2}{3}$ gallons less than she sold on Sunday.

How many gallons of lemonade did Jessie sell on Monday?

Show your work.



Answer $11\frac{1}{3}$ gallons

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The number of gallons of lemonade sold on Monday is calculated correctly using mathematically sound procedures.

GUIDE PAPER 3

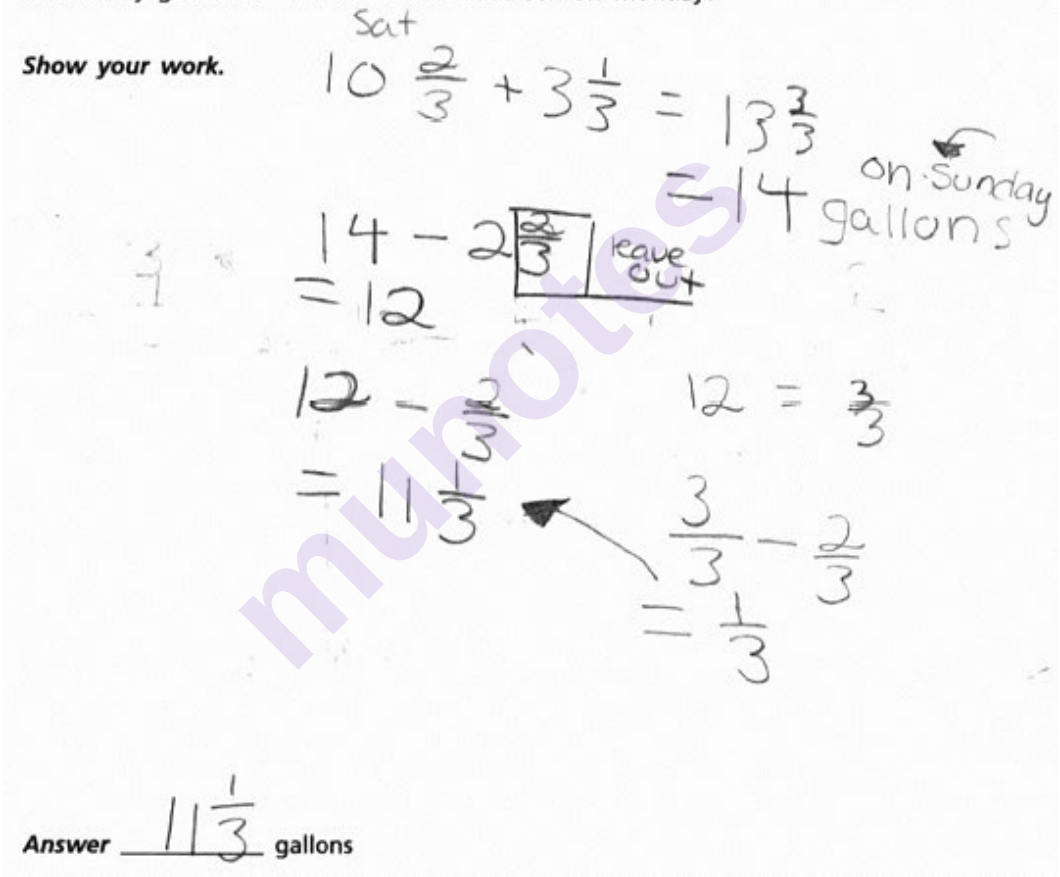
49

Jessie set up a lemonade stand for three days.

- On Saturday, she sold $10\frac{2}{3}$ gallons of lemonade.
- On Sunday, she sold $3\frac{1}{3}$ gallons more than she sold on Saturday.
- On Monday, she sold $2\frac{2}{3}$ gallons less than she sold on Sunday.

How many gallons of lemonade did Jessie sell on Monday?

Show your work.



Answer $11\frac{1}{3}$ gallons

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The number of gallons of lemonade sold on Monday is calculated correctly using mathematically sound procedures.

GUIDE PAPER 4

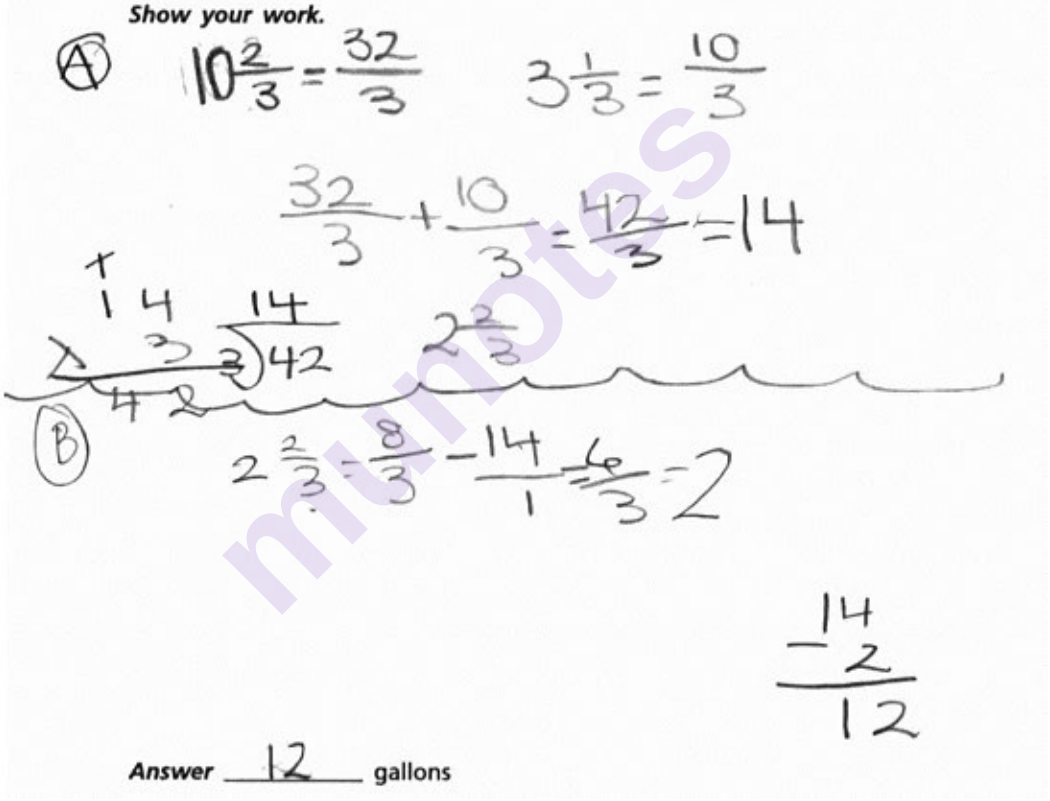
49

Jessie set up a lemonade stand for three days.

- On Saturday, she sold $10\frac{2}{3}$ gallons of lemonade.
- On Sunday, she sold $3\frac{1}{3}$ gallons more than she sold on Saturday.
- On Monday, she sold $2\frac{2}{3}$ gallons less than she sold on Sunday.

How many gallons of lemonade did Jessie sell on Monday?

Show your work.



Answer 12 gallons

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The amount of lemonade sold on Sunday is correctly calculated; however, the calculation for the amount of lemonade sold on Monday contains multiple errors and results in an incorrect solution. The response correctly addresses only some elements of the task.

GUIDE PAPER 5

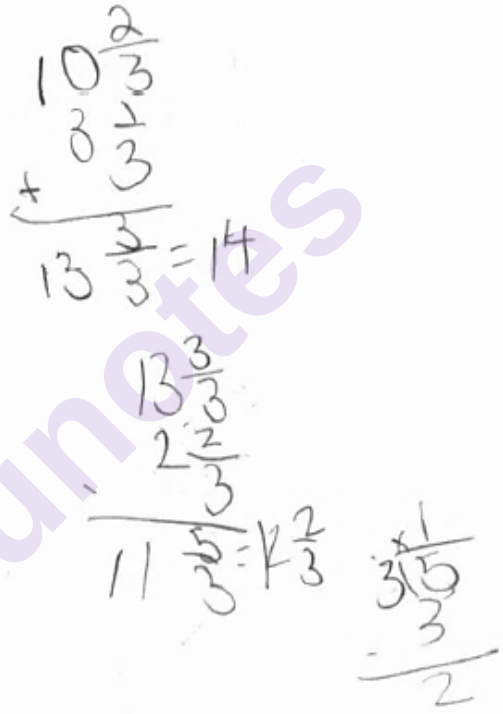
49

Jessie set up a lemonade stand for three days.

- On Saturday, she sold $10\frac{2}{3}$ gallons of lemonade.
- On Sunday, she sold $3\frac{1}{3}$ gallons more than she sold on Saturday.
- On Monday, she sold $2\frac{2}{3}$ gallons less than she sold on Sunday.

How many gallons of lemonade did Jessie sell on Monday?

Show your work.



Answer $12\frac{2}{3}$ gallons

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The amount of lemonade sold on Sunday is correctly calculated and the operation to calculate the amount of lemonade sold on Monday is correct; however, the fractional portions of the mixed numbers are added instead of subtracted. The response contains an incorrect solution but applies a mathematically appropriate process.

GUIDE PAPER 6

49

Jessie set up a lemonade stand for three days.

- On Saturday, she sold $10\frac{2}{3}$ gallons of lemonade.
- On Sunday, she sold $3\frac{1}{3}$ gallons more than she sold on Saturday.
- On Monday, she sold $2\frac{2}{3}$ gallons less than she sold on Sunday.

How many gallons of lemonade did Jessie sell on Monday?

Show your work.

14

$10\frac{2}{3}$

$3\frac{1}{3}$

$13\frac{3}{3} \rightarrow 13 + \frac{3}{3} = 13 + 1 = 14$

$2\frac{2}{3}$

$16\frac{2}{3}$

Answer $16\frac{2}{3}$ gallons

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The amount of lemonade sold on Sunday is correctly calculated; however, the amount of lemonade sold on Monday is calculated as $2\frac{2}{3}$ gallons more than on Sunday rather than $2\frac{2}{3}$ gallons less than on Sunday. This response correctly addresses only some elements of the task.

GUIDE PAPER 7

49

Jessie set up a lemonade stand for three days.

- On Saturday, she sold $10\frac{2}{3}$ gallons of lemonade.
- On Sunday, she sold $3\frac{1}{3}$ gallons more than she sold on Saturday.
- On Monday, she sold $2\frac{2}{3}$ gallons less than she sold on Sunday.

How many gallons of lemonade did Jessie sell on Monday?

Show your work.

10
+ 3
2
15

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

15 $\frac{5}{3}$

Answer $5\frac{5}{3}$ gallons

Score Point 0 (out of 2 points)

Although some elements may contain correct mathematical procedures, holistically this response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The whole numbers and fractional portions are added together for an incorrect solution.

49

Jessie set up a lemonade stand for three days.

- On Saturday, she sold $10\frac{2}{3}$ gallons of lemonade.
- On Sunday, she sold $3\frac{1}{3}$ gallons more than she sold on Saturday.
- On Monday, she sold $2\frac{2}{3}$ gallons less than she sold on Sunday.

How many gallons of lemonade did Jessie sell on Monday?

Show your work.

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

Answer $1\frac{1}{3}$ gallons

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The subtraction shown in the work is irrelevant and incorrect.

50 Three students performed a science experiment using salt and a beaker. The beaker contained 530.2 grams of salt before the experiment started. During the experiment, each of the 3 students removed 47.36 grams of salt from the beaker.

How much salt, in grams, was left in the beaker at the end of the experiment?

Show your work.

Answer _____ grams

EXEMPLARY RESPONSE

50

Three students performed a science experiment using salt and a beaker. The beaker contained 530.2 grams of salt before the experiment started. During the experiment, each of the 3 students removed 47.36 grams of salt from the beaker.

How much salt, in grams, was left in the beaker at the end of the experiment?

Show your work.

$3 \times 47.36 = 142.08$

$530.2 - 142.08 = 388.12$

Or other valid response

Answer 388.12 grams

50

Three students performed a science experiment using salt and a beaker. The beaker contained 530.2 grams of salt before the experiment started. During the experiment, each of the 3 students removed 47.36 grams of salt from the beaker.

How much salt, in grams, was left in the beaker at the end of the experiment?

Show your work.

Start 530.2

$$\begin{array}{r} {}^{2}{}^{1}{}^{1} \\ 47.36 \\ \times \quad 3 \\ \hline 142.08 \end{array}$$

$$\begin{array}{r} {}^{12}{}^{10}{}^{1}{}^{10} \\ 5\not{3}\not{0}.\not{2}\not{0} \\ -\ 142.08 \\ \hline 388.12 \end{array}$$

Answer 388.12 grams

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The total amount of salt removed during the experiment is correctly calculated and subtracted from the total starting amount of salt to determine the correct solution using mathematically sound procedures.

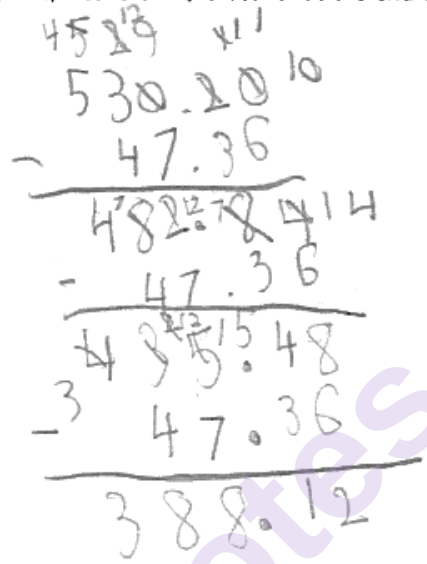
GUIDE PAPER 2

50

Three students performed a science experiment using salt and a beaker. The beaker contained 530.2 grams of salt before the experiment started. During the experiment, each of the 3 students removed 47.36 grams of salt from the beaker.

How much salt, in grams, was left in the beaker at the end of the experiment?

Show your work.



Answer 388.12 grams

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The amount of salt removed by each student is correctly subtracted three times from the total amount of salt at the beginning of the experiment to correctly determine the solution using mathematically sound procedures.

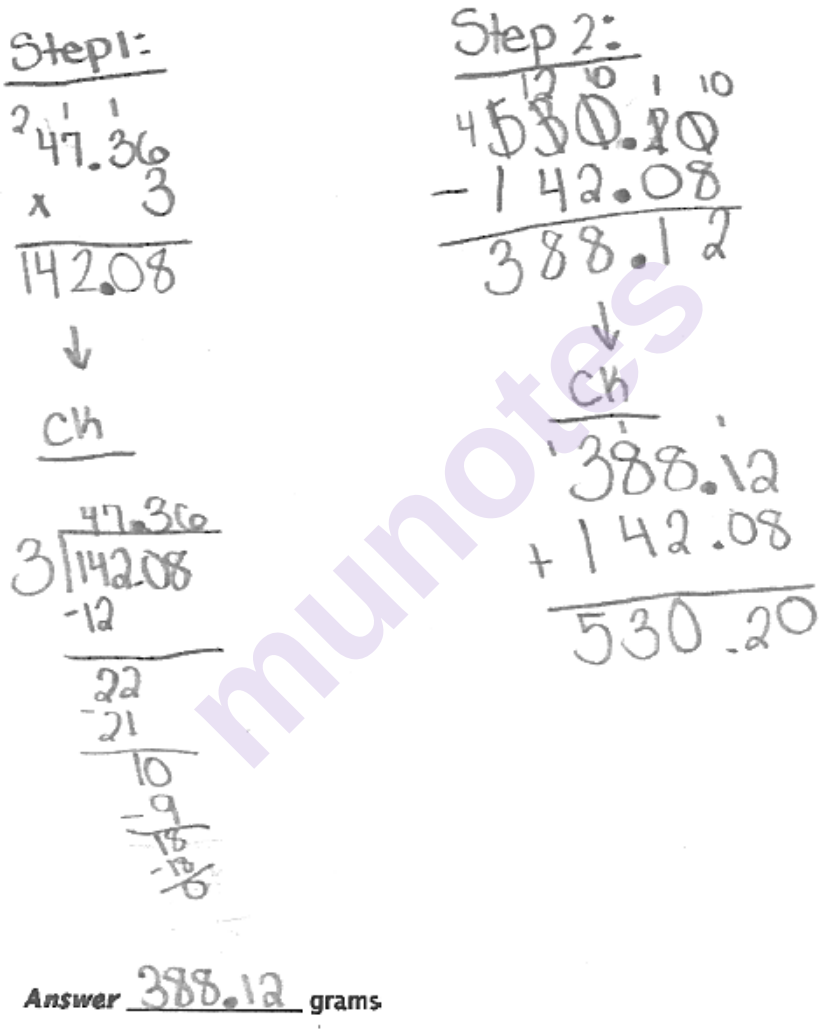
GUIDE PAPER 3

50

Three students performed a science experiment using salt and a beaker. The beaker contained 530.2 grams of salt before the experiment started. During the experiment, each of the 3 students removed 47.36 grams of salt from the beaker.

How much salt, in grams, was left in the beaker at the end of the experiment?

Show your work.



Answer 388.12 grams

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The total amount of salt removed during the experiment is correctly calculated and subtracted from the total starting amount of salt to determine the correct solution using mathematically sound procedures.

GUIDE PAPER 4

50

Three students performed a science experiment using salt and a beaker. The beaker contained 530.2 grams of salt before the experiment started. During the experiment, each of the 3 students removed 47.36 grams of salt from the beaker.

How much salt, in grams, was left in the beaker at the end of the experiment?

Show your work.

Three students

beaker = 530.2 grams

3 students removed 47.36 grams

1st student

530.20
− 47.36
482.84

2nd student

482.84
− 47.36
435.48

3rd student

435.48
− 47.36
388.02

Answer 388.02 grams

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The amount of salt removed by each student is correctly subtracted three times from the total amount of salt at the beginning of the experiment; however, there is a transcription error from the work for the second student to the work for the third student (435.48 → 435.38) resulting in an incorrect final solution. The response contains an incorrect solution but applies a mathematically appropriate process.

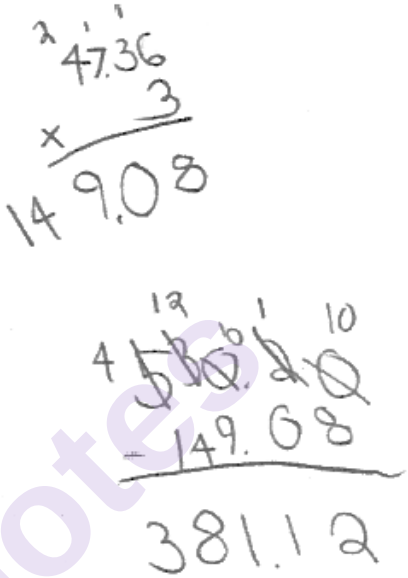
GUIDE PAPER 5

50

Three students performed a science experiment using salt and a beaker. The beaker contained 530.2 grams of salt before the experiment started. During the experiment, each of the 3 students removed 47.36 grams of salt from the beaker.

How much salt, in grams, was left in the beaker at the end of the experiment?

Show your work.



Answer 381.12 grams

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The total amount of salt removed during the experiment by all three students is calculated; however, a calculation error occurs resulting in an incorrect total amount of salt removed. The result is then correctly subtracted from the total starting amount of salt to determine the solution. The response contains an incorrect solution but applies a mathematically appropriate process.

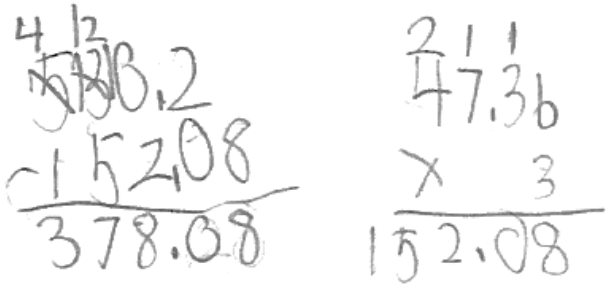
GUIDE PAPER 6

50

Three students performed a science experiment using salt and a beaker. The beaker contained 530.2 grams of salt before the experiment started. During the experiment, each of the 3 students removed 47.36 grams of salt from the beaker.

How much salt, in grams, was left in the beaker at the end of the experiment?

Show your work.



Answer 378.08 grams

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The amount of salt removed from the beaker is appropriately multiplied by 3 to account for the three students; however, a calculation error occurs. The result is then subtracted from the total starting amount of salt; however, another calculation error occurs, resulting in an incorrect solution. This response contains an incorrect solution but applies a mathematically appropriate process.

GUIDE PAPER 7

50

Three students performed a science experiment using salt and a beaker. The beaker contained 530.2 grams of salt before the experiment started. During the experiment, each of the 3 students removed 47.36 grams of salt from the beaker.

How much salt, in grams, was left in the beaker at the end of the experiment?

Show your work.

530.20
+ 47.36
577.56

Answer 577.56 grams

Score Point 0 (out of 2 points)

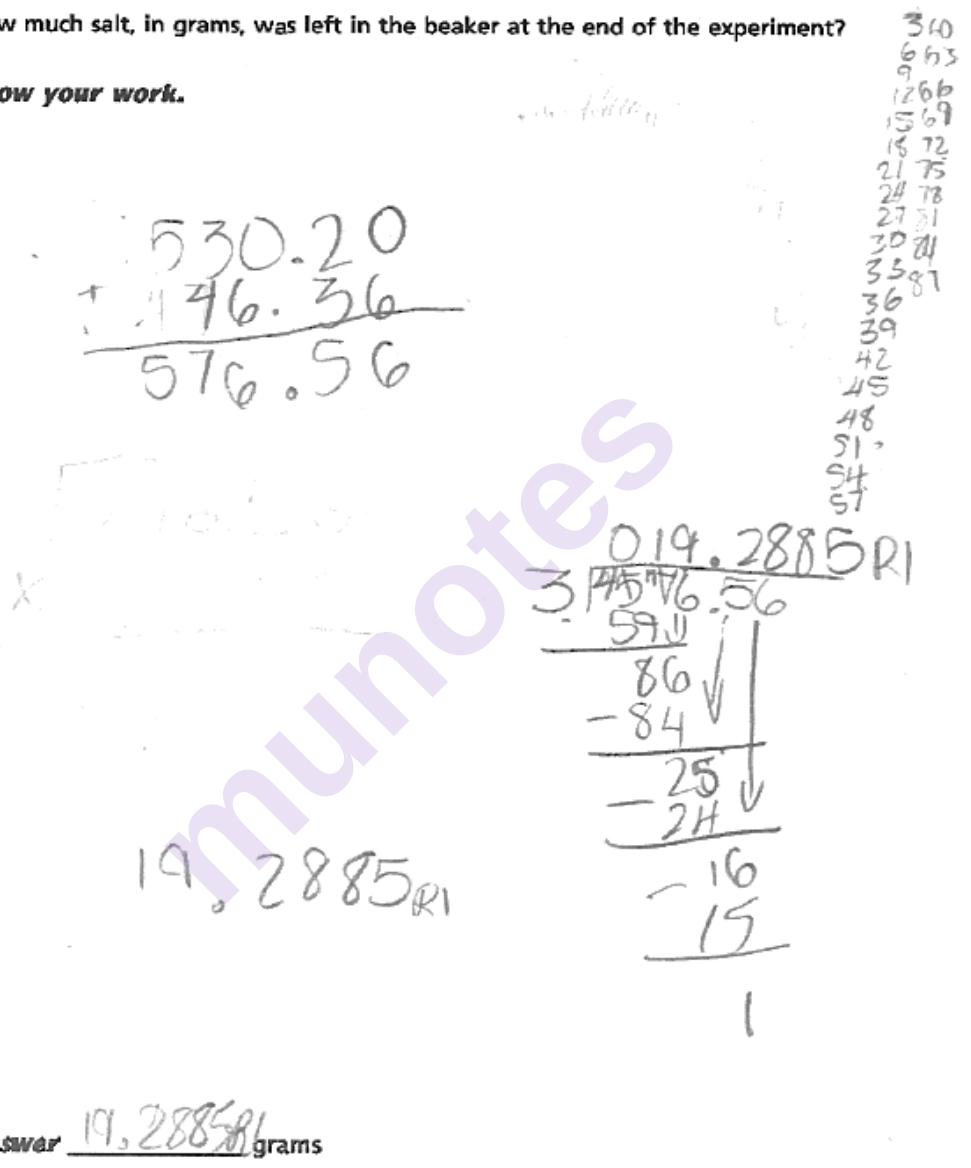
This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The amount of salt removed by one student is inappropriately added to the total amount of salt in the beaker at the beginning of the experiment.

50

Three students performed a science experiment using salt and a beaker. The beaker contained 530.2 grams of salt before the experiment started. During the experiment, each of the 3 students removed 47.36 grams of salt from the beaker.

How much salt, in grams, was left in the beaker at the end of the experiment?

Show your work.



Answer 19.2885 R1 grams

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The addition and division operations used are irrelevant and incorrect.

51

The dimensions of Mr. Tai's living room are 10 feet × 18 feet × 8 feet, and the dimensions of his family room are 14 feet × 20 feet × 8 feet. What is the total volume, in cubic feet, of the two rooms?

Show your work.

Answer _____ cubic feet

EXEMPLARY RESPONSE

51

The dimensions of Mr. Tai's living room are 10 feet × 18 feet × 8 feet, and the dimensions of his family room are 14 feet × 20 feet × 8 feet. What is the total volume, in cubic feet, of the two rooms?

Show your work.

Living Room: $10 \times 18 \times 8 = 1440$ cubic feet

Family Room: $14 \times 20 \times 8 = 2240$ cubic feet

$1440 + 2240 = 3680$ cubic feet

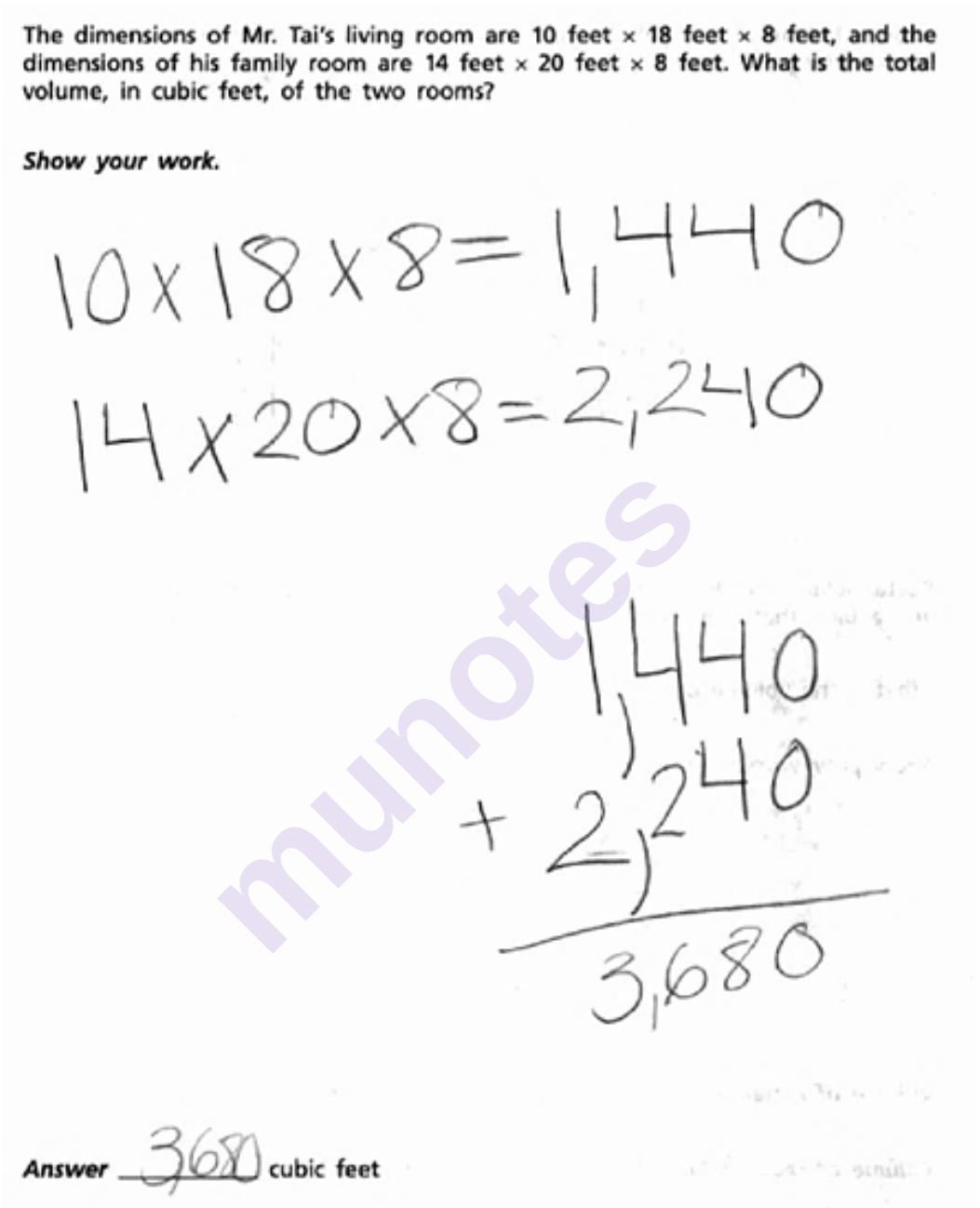
Or other valid response

Answer 3680 cubic feet

51

The dimensions of Mr. Tai's living room are 10 feet × 18 feet × 8 feet, and the dimensions of his family room are 14 feet × 20 feet × 8 feet. What is the total volume, in cubic feet, of the two rooms?

Show your work.



Score Point 2 (out of 2 points)

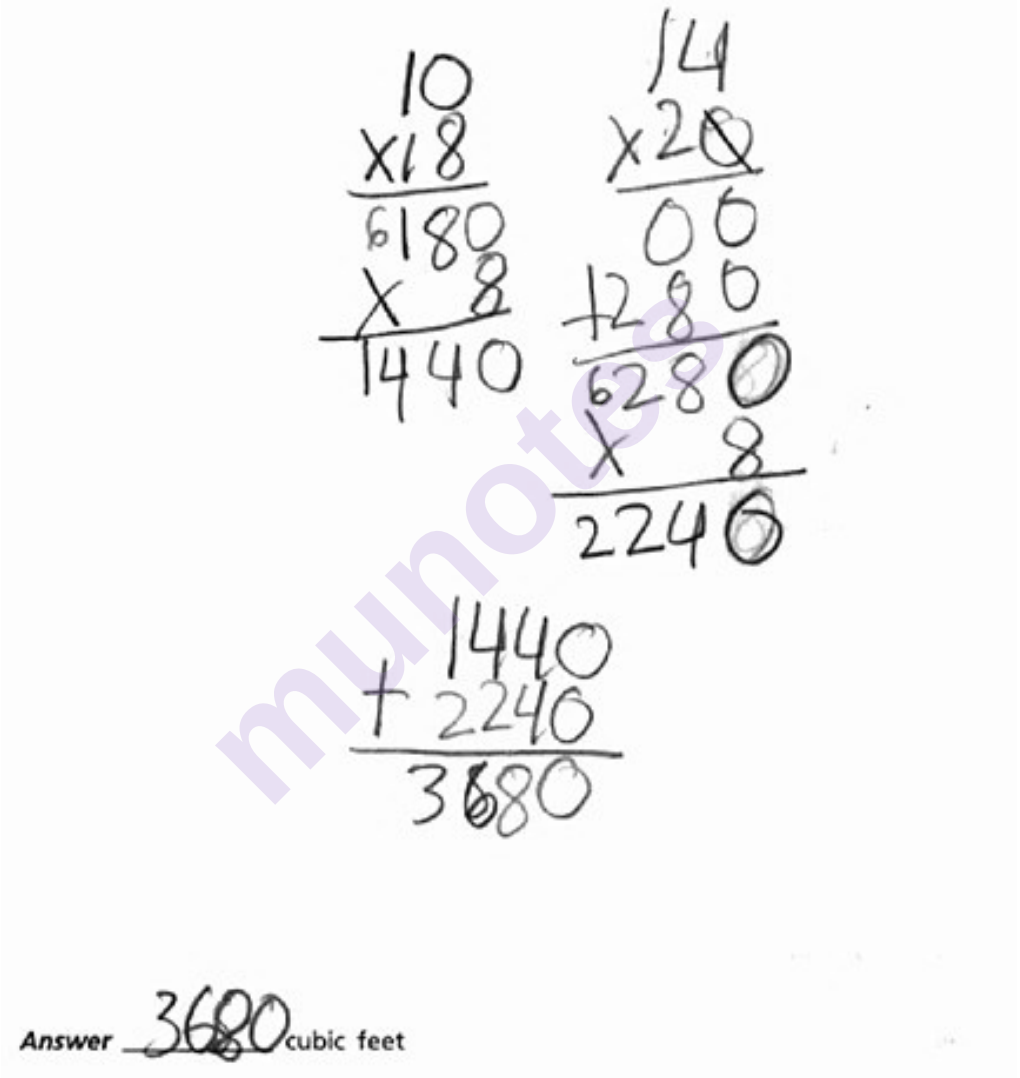
This response demonstrates a thorough understanding of the mathematical concepts in the task. The dimensions of both rooms are correctly multiplied to determine their volumes and the results are appropriately added to determine the correct solution using mathematically sound procedures.

GUIDE PAPER 2

51

The dimensions of Mr. Tai's living room are 10 feet × 18 feet × 8 feet, and the dimensions of his family room are 14 feet × 20 feet × 8 feet. What is the total volume, in cubic feet, of the two rooms?

Show your work.



Answer 3680 cubic feet

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The dimensions of both rooms are correctly multiplied to determine their volumes and the results are appropriately added to determine the correct solution using mathematically sound procedures.

GUIDE PAPER 3

51

The dimensions of Mr. Tai's living room are 10 feet × 18 feet × 8 feet, and the dimensions of his family room are 14 feet × 20 feet × 8 feet. What is the total volume, in cubic feet, of the two rooms?

Show your work.

10*18*8 + 14*20*8

Answer 3680 cubic feet

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A correct expression is provided and correctly evaluated to determine the total volume of both rooms using mathematically sound procedures.

GUIDE PAPER 4

51

The dimensions of Mr. Tai's living room are 10 feet × 18 feet × 8 feet, and the dimensions of his family room are 14 feet × 20 feet × 8 feet. What is the total volume, in cubic feet, of the two rooms?

Show your work.

V=L×W×H

10ft × 18ft × 8ft = 1440 ft

14ft × 20ft × 8ft = 800ft ①

1,440
+ 800
2,240 ft

Answer 2,240 cubic feet

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The volume of the living room is calculated correctly; however, a calculation error occurs in the multiplication operation for the volume of the family room. Both volumes are then appropriately added to determine the solution. This response contains an incorrect solution but applies a mathematically appropriate process.

GUIDE PAPER 5

51

The dimensions of Mr. Tai's living room are 10 feet × 18 feet × 8 feet, and the dimensions of his family room are 14 feet × 20 feet × 8 feet. What is the total volume, in cubic feet, of the two rooms?

Show your work.

14FT*20FT=280FT*8FT=2,240FT=FAMILY ROOM 10FT*18FT=180FT*8=1,440FT=MR.TIAS ROOM

Answer (NO STUDENT RESPONSE GIVEN) cubic feet

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. All dimensions are appropriately multiplied and both individual room volumes are correctly determined; however, they are not added to calculate the total volume. The response correctly addresses only some elements of the task.

GUIDE PAPER 6

51

The dimensions of Mr. Tai's living room are 10 feet × 18 feet × 8 feet, and the dimensions of his family room are 14 feet × 20 feet × 8 feet. What is the total volume, in cubic feet, of the two rooms?

Show your work.

10x18x8=1440. 14x20x8=2300. 2300+1440=3740 total cubic feet

Answer 3740 cubic feet

Score Point 1 (out of 2 points)

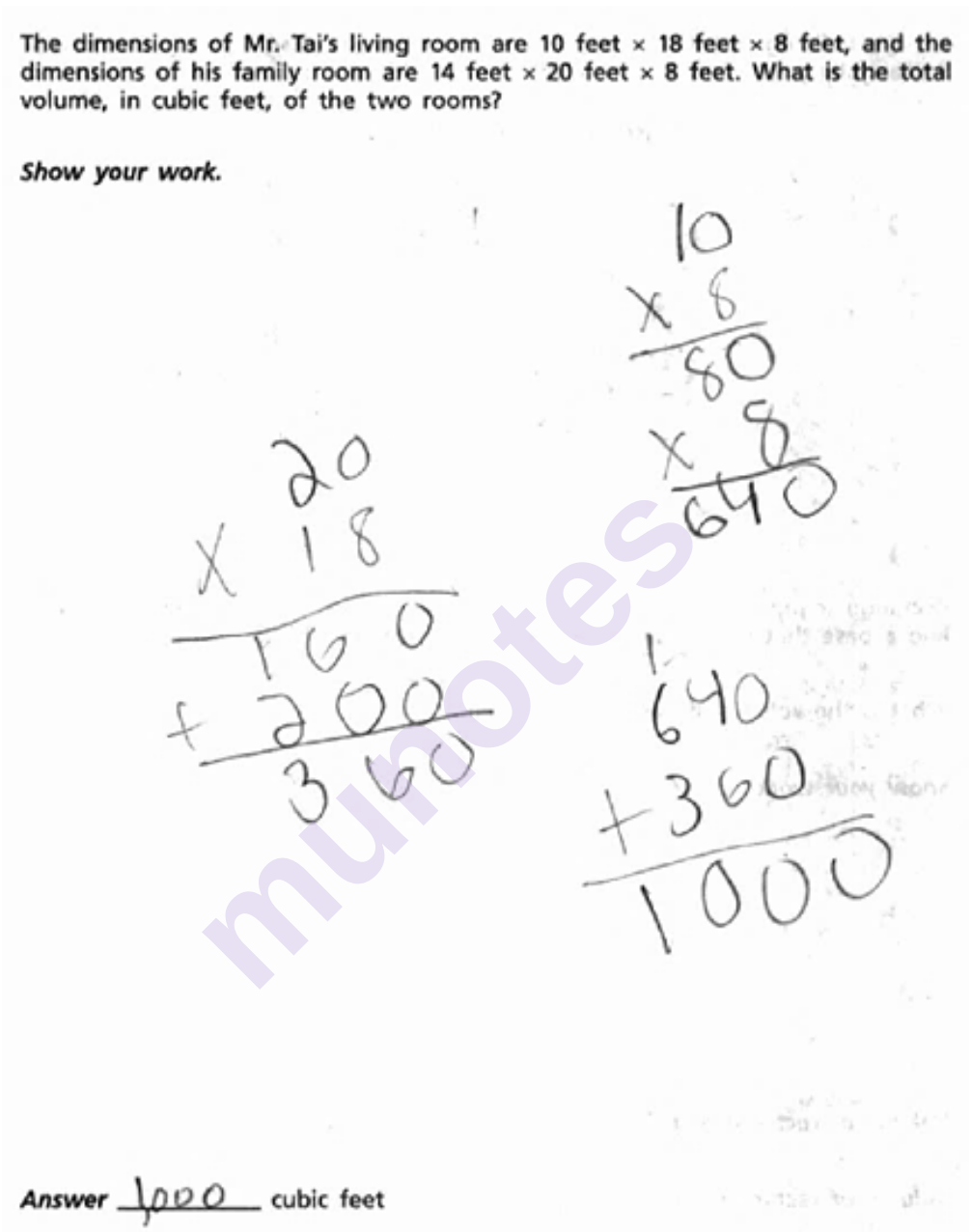
This response demonstrates only a partial understanding of the mathematical concepts in the task. The volume of the living room is calculated correctly; however, a calculation error occurs in the multiplication operations for the volume of the family room. Both volumes are then appropriately added to determine the solution. This response contains an incorrect solution but applies a mathematically appropriate process.

GUIDE PAPER 7

51

The dimensions of Mr. Tai's living room are 10 feet × 18 feet × 8 feet, and the dimensions of his family room are 14 feet × 20 feet × 8 feet. What is the total volume, in cubic feet, of the two rooms?

Show your work.



Answer 1000 cubic feet

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The volumes are incorrectly calculated using only two dimensions each.

51

The dimensions of Mr. Tai's living room are 10 feet × 18 feet × 8 feet, and the dimensions of his family room are 14 feet × 20 feet × 8 feet. What is the total volume, in cubic feet, of the two rooms?

Show your work.

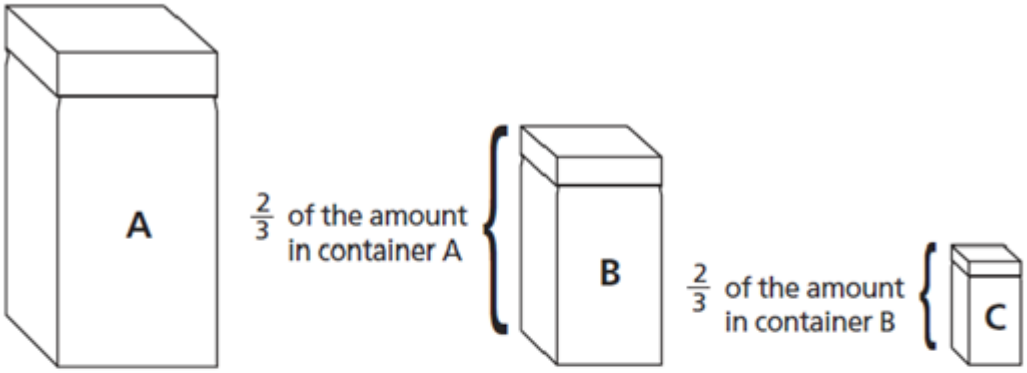
the answer is 2240

Answer 2240 cubic feet

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The solution is incorrect and no work is shown to demonstrate how it is obtained.

52 The diagram below shows a set of three different-sized containers Tanner used for storing dry goods. The largest container held $12\frac{3}{4}$ cups of dry goods.



What was the total amount, in cups, of dry goods that Tanner could store in all three containers?

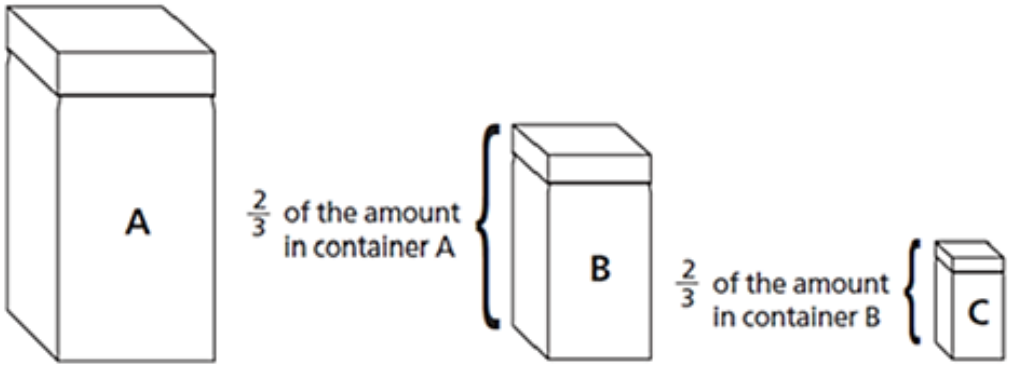
Show your work.

Answer _____ cups

EXEMPLARY RESPONSE

52

The diagram below shows a set of three different-sized containers Tanner used for storing dry goods. The largest container held $12\frac{3}{4}$ cups of dry goods.



What was the total amount, in cups, of dry goods that Tanner could store in all three containers?

Show your work.

Container B amount: $12\frac{3}{4} \times \frac{2}{3} = \frac{51}{4} \times \frac{2}{3} = \frac{102}{12} = 8\frac{1}{2}$

Container C amount: $\frac{17}{2} \times \frac{2}{3} = \frac{34}{6} = 5\frac{2}{3}$

Total amount for all containers:

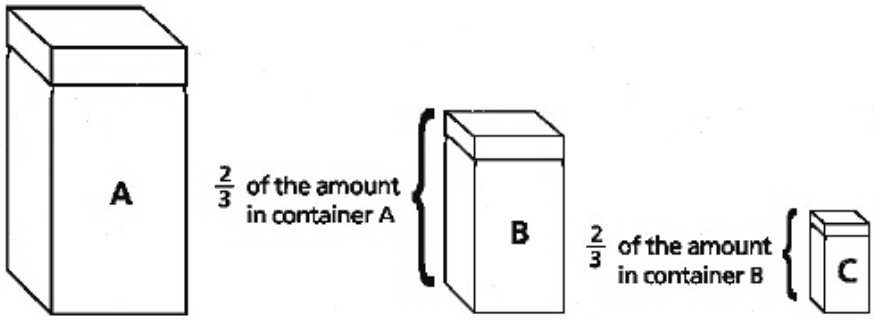
$$12\frac{3}{4} + 8\frac{1}{2} + 5\frac{2}{3} = \frac{153}{12} + \frac{102}{12} + \frac{68}{12} = \frac{323}{12} = 26\frac{11}{12}$$

Or other valid response

Answer $26\frac{11}{12}$ cups

52

The diagram below shows a set of three different-sized containers Tanner used for storing dry goods. The largest container held $12\frac{3}{4}$ cups of dry goods.



What was the total amount, in cups, of dry goods that Tanner could store in all three containers?

Show your work.

$12\frac{3}{4} = \frac{51}{4}$

$\frac{17}{2} \times \frac{2}{3} = \frac{17}{3} = 8\frac{1}{2}$

$17 \times \frac{1}{2} = \frac{17}{3}$

$12\frac{3}{4}(3) + 8\frac{1}{2}(6) + 5\frac{2}{3}(4) = 12\frac{9}{12} + 8\frac{6}{12} + 5\frac{8}{12}$

$25\frac{23}{12} = 26\frac{11}{12}$

Answer $26\frac{11}{12}$ cups

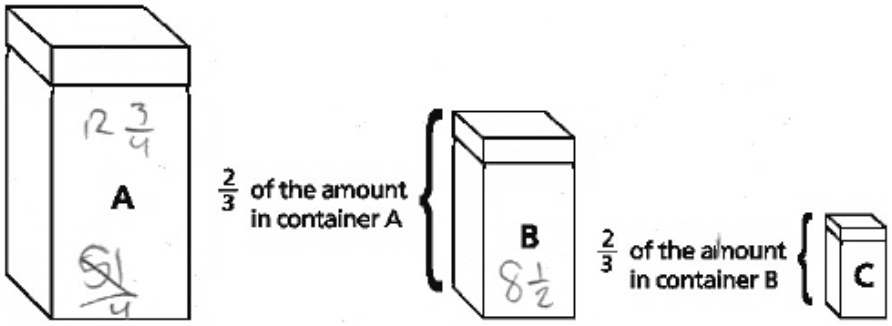
Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. Appropriate and correct manipulations of fractions between improper and proper form along with multiplication and addition of the fractions is carried out to determine the correct solution using mathematically sound procedures.

GUIDE PAPER 2

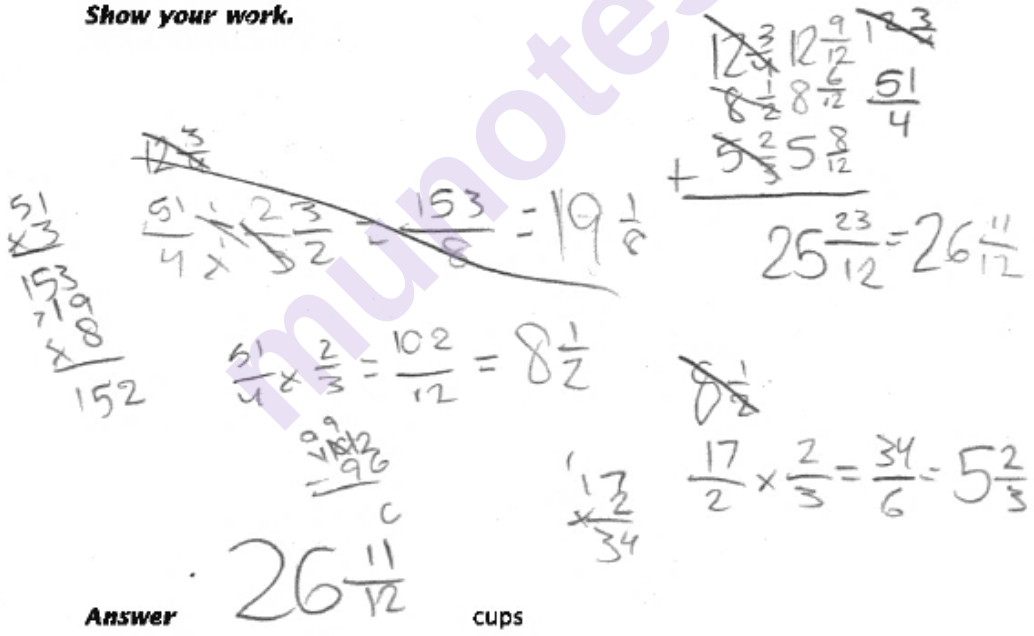
52

The diagram below shows a set of three different-sized containers Tanner used for storing dry goods. The largest container held $12\frac{3}{4}$ cups of dry goods.



What was the total amount, in cups, of dry goods that Tanner could store in all three containers?

Show your work.



Answer $26\frac{11}{12}$ cups

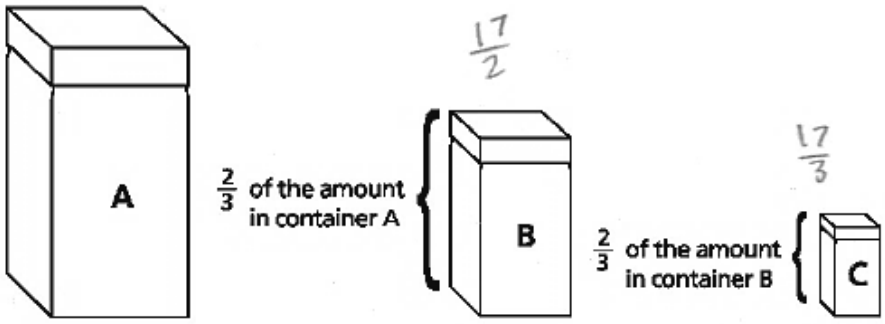
Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. Appropriate and correct manipulations of fractions between improper and proper form along with multiplication and addition of the fractions is carried out to determine the correct solution using mathematically sound procedures.

GUIDE PAPER 3

52

The diagram below shows a set of three different-sized containers Tanner used for storing dry goods. The largest container held $12\frac{3}{4}$ cups of dry goods.



What was the total amount, in cups, of dry goods that Tanner could store in all three containers?

Show your work.

Answer $26\frac{11}{12}$ cups

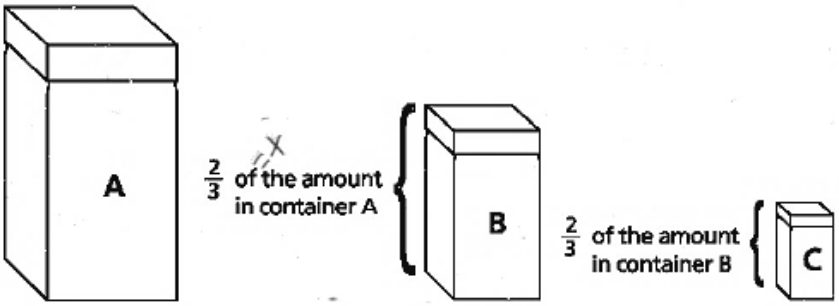
Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. Appropriate and correct manipulations of fractions between improper and proper form along with multiplication and addition of the fractions is carried out to determine the correct solution using mathematically sound procedures.

GUIDE PAPER 4

52

The diagram below shows a set of three different-sized containers Tanner used for storing dry goods. The largest container held $12\frac{3}{4}$ cups of dry goods.



What was the total amount, in cups, of dry goods that Tanner could store in all three containers?

Show your work.

$A = 12\frac{3}{4}$ $B = 8\frac{1}{2}$ $C = 5\frac{1}{3}$

$12\frac{3}{4} \times \frac{2}{3} = \frac{51}{4} \times \frac{2}{3} = \frac{102}{12} = 8\frac{6}{12} = 8\frac{1}{2}$

$8\frac{1}{2} \times \frac{2}{3} = \frac{19}{2} \times \frac{2}{3} = \frac{38}{6} = 6\frac{2}{6} = 6\frac{1}{3}$

$12\frac{3}{4} = \frac{9}{12}$

$8\frac{1}{2} = \frac{6}{12}$

$+ \; 6\frac{1}{3} = \frac{4}{12}$

$26 \quad \frac{19}{12} = 27\frac{7}{12}$

Answer $27\frac{7}{12}$ cups of dry goods

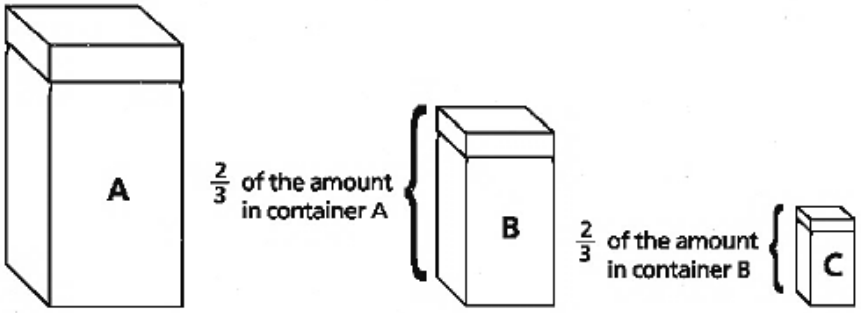
Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The amount in container B is correctly determined. The operation to calculate the amount in container C is correctly provided; however, the value $8\frac{1}{2}$ is incorrectly converted into an improper fraction ($8\frac{1}{2} \rightarrow {}^{19}\!/_{2}$). The three amounts are then correctly added to determine the solution. This response contains an incorrect solution but provides sound procedures.

GUIDE PAPER 5

52

The diagram below shows a set of three different-sized containers Tanner used for storing dry goods. The largest container held $12\frac{3}{4}$ cups of dry goods.



What was the total amount, in cups, of dry goods that Tanner could store in all three containers?

Show your work.

$A = 12\frac{3}{4} = \frac{9}{12}$

$B = 8\frac{1}{2} = \frac{6}{12}$

$C = 5\frac{4}{6} = \frac{4}{12}$

$\frac{23}{12} = 1\frac{11}{12}$

$\frac{51}{4} \times \frac{2}{3} = \frac{102}{12}$

$\frac{102}{12} = 8\frac{1}{2}$

$\frac{17}{2} \times \frac{2}{3} = \frac{34}{6}$

$\frac{34}{6} = 5\frac{4}{6}$

12 × 8 = 96, 96 + 12 = 108

Answer $1\frac{11}{12}$ cups

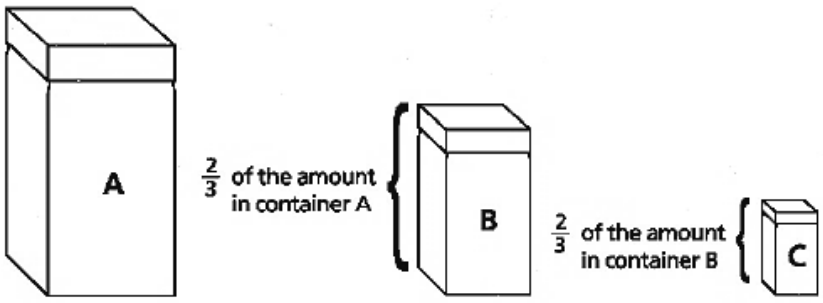
Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The amounts for containers B and C are correctly calculated; however, when all three amounts in the containers are added to determine the solution only the fractional portions of each container are included. This response reflects some minor misunderstanding of the underlying mathematical procedures.

GUIDE PAPER 6

52

The diagram below shows a set of three different-sized containers Tanner used for storing dry goods. The largest container held $12\frac{3}{4}$ cups of dry goods.



What was the total amount, in cups, of dry goods that Tanner could store in all three containers?

A= $12\frac{1}{3}$ ✓✓ B: $8\frac{1}{2}$ ✓✓ C= $5\frac{2}{3}$ ✓✓

Show your work.

$\frac{51}{4}$ ✓✓ $\frac{21}{3}$ ✓✓ $\frac{51}{6}$ ✓✓ $8\frac{1}{2}$ ✓✓

$\frac{17}{12}$ ✓✓ $\frac{12}{3}$ ✓✓ $\frac{17}{3}$ ✓✓ $5\frac{2}{3}$ ✓✓

$12\frac{1}{3} = 12\frac{2}{6}$

$8\frac{1}{2} = 8\frac{3}{6}$

$5\frac{2}{3} = 5\frac{4}{6}$

$25\frac{9}{6}$

$26\frac{1}{2}$ ✓✓

Answer $26\frac{1}{2}$ ✓✓ cups

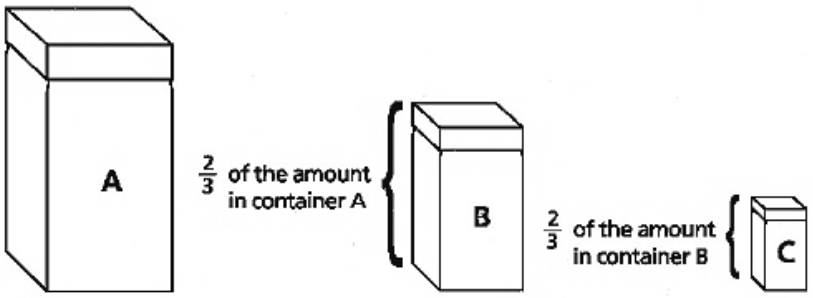
Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The amounts for containers B and C are correctly determined. The amounts from all three containers are then correctly added to determine the total; however, a transcription error for the amount in container A ($12\frac{3}{4} \rightarrow 12\frac{1}{3}$) results in an incorrect solution. This response contains an incorrect solution but provides sound procedures.

GUIDE PAPER 7

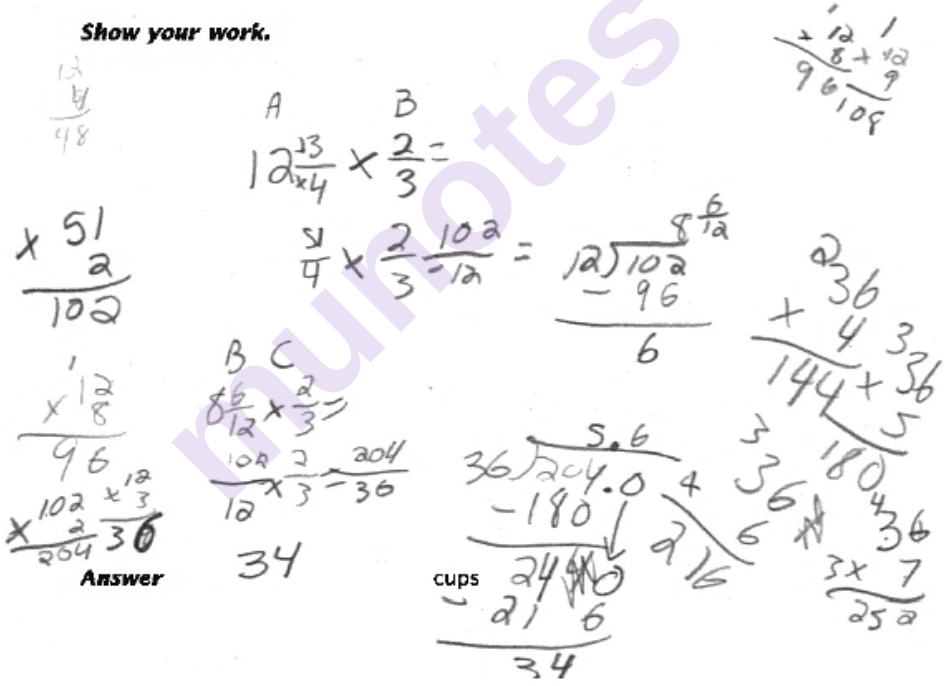
52

The diagram below shows a set of three different-sized containers Tanner used for storing dry goods. The largest container held $12\frac{3}{4}$ cups of dry goods.



What was the total amount, in cups, of dry goods that Tanner could store in all three containers?

Show your work.

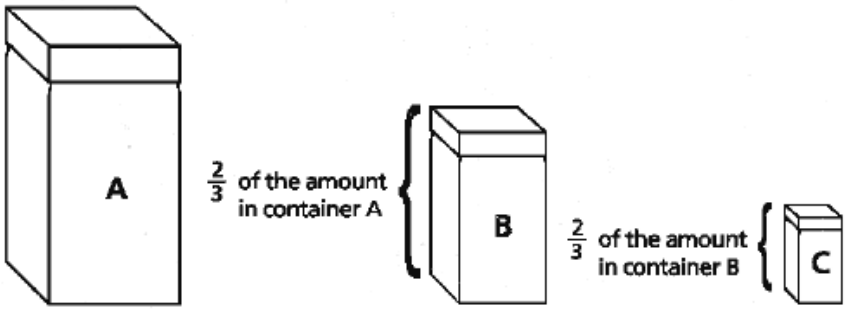


Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts in the task. The amounts in containers B and C are correctly calculated; however, the amounts are not added to determine a total and the solution is incorrect. This response addresses some elements of the task correctly but reaches an inadequate solution and provides reasoning that is incomplete.

52

The diagram below shows a set of three different-sized containers Tanner used for storing dry goods. The largest container held $12\frac{3}{4}$ cups of dry goods.



What was the total amount, in cups, of dry goods that Tanner could store in all three containers?

Show your work.

$12\frac{3}{4} + 8\frac{2}{3} + 5\frac{1}{4}$

$12\frac{3}{4}$ $8\frac{2}{3}$ $5\frac{1}{4}$

$\frac{52}{4} \times \frac{2}{3} = \frac{104}{12}$

$\frac{104}{12} \times \frac{2}{3} = \frac{208}{36}$

$12 + 8 + 5 = 25$

Answer 28 cups

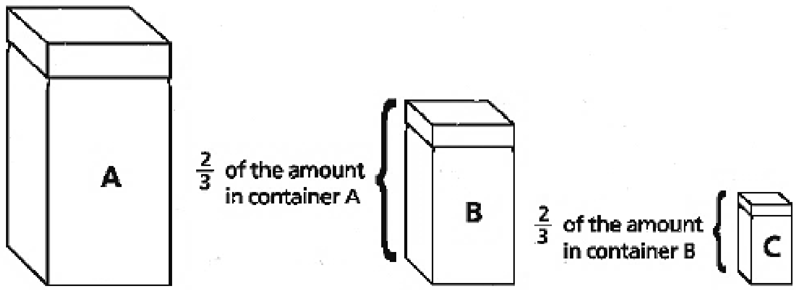
Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts in the task. The amount in container B is correctly multiplied by $^{2}/_{3}$; however, container A's amount is not converted to an improper fraction correctly ($^{51}/_{4} \rightarrow {}^{52}/_{4}$). Container C is correctly calculated from container B's amount; however, there is a calculation error when the three amounts are added together. This response addresses some elements of the task correctly but reaches an inadequate solution.

GUIDE PAPER 9

52

The diagram below shows a set of three different-sized containers Tanner used for storing dry goods. The largest container held $12\frac{3}{4}$ cups of dry goods.



What was the total amount, in cups, of dry goods that Tanner could store in all three containers?

Show your work.

Answer $60\frac{9}{16}$ cups

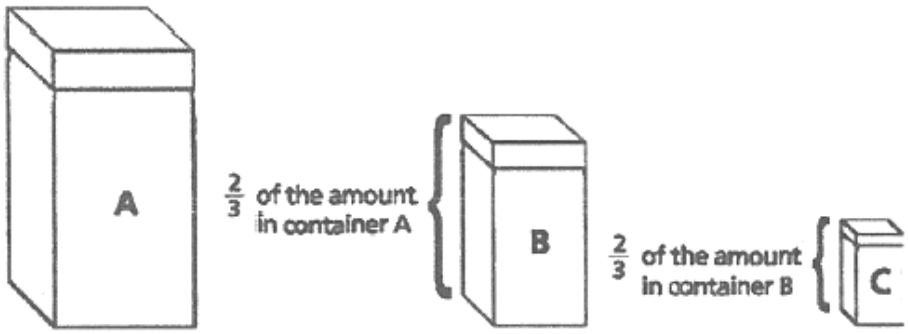
Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts in the task. The amounts in containers A and B are divided by ⅔ instead of multiplied by ⅔ to determine the amounts in containers B and C. The three amounts are then correctly added to determine the solution. This response reflects a lack of essential understanding of the underlying mathematical concepts.

GUIDE PAPER 10

52

The diagram below shows a set of three different-sized containers Tanner used for storing dry goods. The largest container held $12\frac{3}{4}$ cups of dry goods.



What was the total amount, in cups, of dry goods that Tanner could store in all three containers?

Show your work.

$\frac{3}{4}=\frac{9}{12}$

$\frac{2}{3}=\frac{8}{12}$

$12\frac{9}{12}$ = Container A

$-\ \frac{8}{12}$

$12\frac{1}{12}$ = Container B

$12\frac{1}{12}+\frac{12}{12}=13\frac{1}{12}$

$-\ \frac{8}{12}=\frac{8}{12}$

Container C = $11\frac{5}{12}$

$12\frac{9}{12}$

$12\frac{1}{12}$

$+\ 11\frac{5}{12}$

$35\frac{15}{12}=36\frac{3}{12}$

$36\frac{1}{4}$

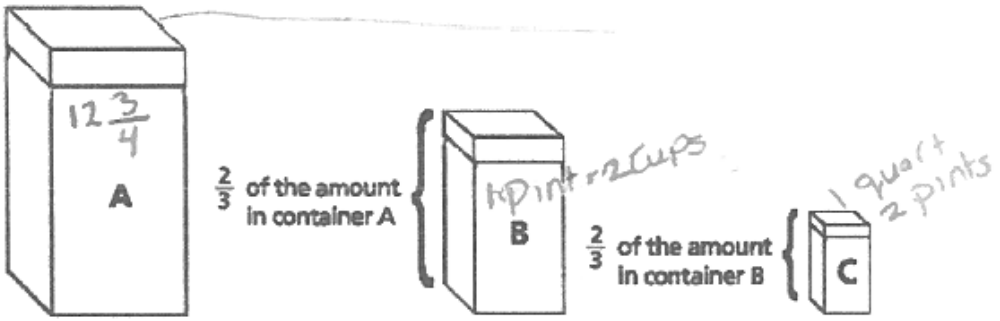
Answer $36\frac{1}{4}$ cups

Score Point 0 (out of 3 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Although the final addition is performed correctly, an incorrect procedure is used to determine the amounts in containers B and C.

52

The diagram below shows a set of three different-sized containers Tanner used for storing dry goods. The largest container held $12\frac{3}{4}$ cups of dry goods.



What was the total amount, in cups, of dry goods that Tanner could store in all three containers?

Show your work.

$12\frac{3}{4} \div 12\frac{8}{1} = 1$

$\frac{2}{3} \times \frac{6}{1} = \frac{12}{3} \div 3 = \frac{4}{1}$ $3 \div 3 = 1$

$12\frac{3}{4} \times \frac{8}{1} = 12$

$\frac{2}{3} \div \frac{6}{1} = 2 \div 2 = 1$ $18 - 2 = 9$

$\frac{1}{9} + \frac{1}{9} + \frac{1}{9} = \frac{3}{9} \div 3 = \frac{1}{3}$

$12\frac{3}{4} \div \frac{2}{3} = 12$

Answer $\frac{1}{3}$ or 8 ounces cups

Score Point 0 (out of 3 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The solution is incorrect and irrelevant.

53

A juice company produced 8,064 cartons of juice in 21 days. Each day, they produced the same number of cartons and delivered those cartons to 16 area coffee shops. The cartons were delivered in cases of six cartons per case, and each coffee shop received an equal number of cases in each delivery. How many cases were delivered to each coffee shop each day?

Show your work.

Answer _____ cases

EXEMPLARY RESPONSE

53

A juice company produced 8,064 cartons of juice in 21 days. Each day, they produced the same number of cartons and delivered those cartons to 16 area coffee shops. The cartons were delivered in cases of six cartons per case, and each coffee shop received an equal number of cases in each delivery. How many cases were delivered to each coffee shop each day?

Show your work.

8,064 cartons in 21 days delivered equally to 16 stores daily

8,064 ÷ 21 = 384 cartons per day

384 ÷ 6 = 64 cases per day

64 ÷ 16 = 4 cases per day per coffee shop

Or

16 × 21 = 336 total number of deliveries for 21 days to all 16 coffee shops

8,067 ÷ 336 = 24 cartons per day per coffee shop

24 ÷ 6 = 4 cases per day per coffee shop

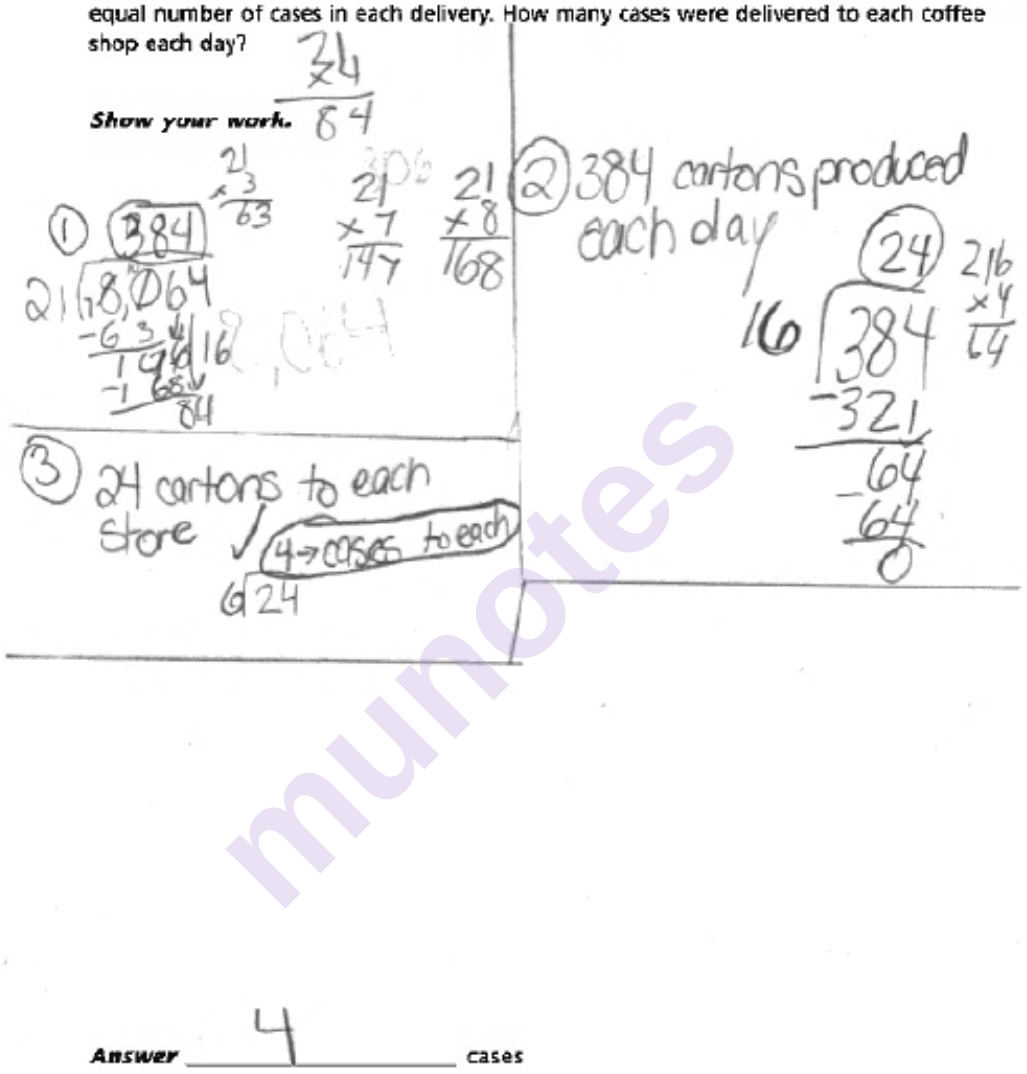
Or other valid response

Answer 4 cases

53

A juice company produced 8,064 cartons of juice in 21 days. Each day, they produced the same number of cartons and delivered those cartons to 16 area coffee shops. The cartons were delivered in cases of six cartons per case, and each coffee shop received an equal number of cases in each delivery. How many cases were delivered to each coffee shop each day?

Show your work.



Answer 4 cases

Score Point 3 (out of 3 points)

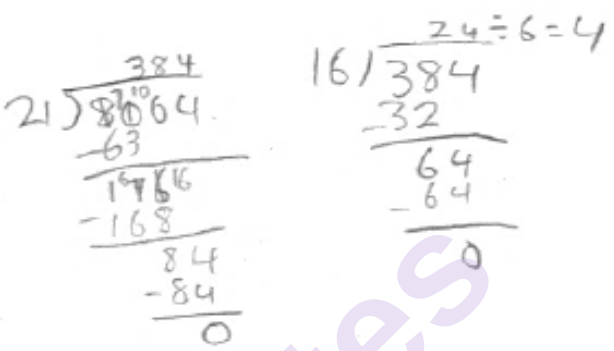
This response demonstrates a thorough understanding of the mathematical concepts in the task. The total number of cartons produced each day, the number of cartons delivered to each coffee shop, and the number of cases delivered to each coffee shop per day are all appropriately and correctly calculated to determine the correct solution using mathematically sound procedures.

GUIDE PAPER 2

53

A juice company produced 8,064 cartons of juice in 21 days. Each day, they produced the same number of cartons and delivered those cartons to 16 area coffee shops. The cartons were delivered in cases of six cartons per case, and each coffee shop received an equal number of cases in each delivery. How many cases were delivered to each coffee shop each day?

Show your work.



Answer 4 cases

Score Point 3 (out of 3 points)

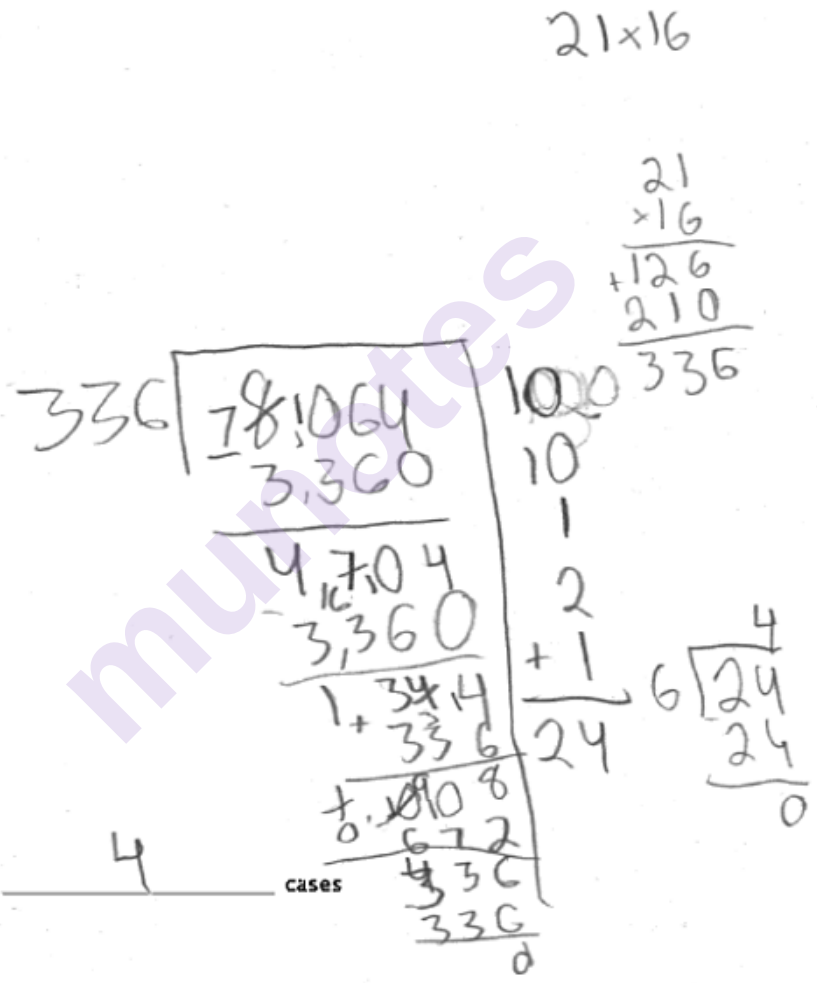
This response demonstrates a thorough understanding of the mathematical concepts in the task. The total number of cartons produced each day, the number of cartons delivered to each coffee shop and the number of cases delivered to each coffee shop per day are all appropriately and correctly calculated to determine the correct solution using mathematically sound procedures.

GUIDE PAPER 3

53

A juice company produced 8,064 cartons of juice in 21 days. Each day, they produced the same number of cartons and delivered those cartons to 16 area coffee shops. The cartons were delivered in cases of six cartons per case, and each coffee shop received an equal number of cases in each delivery. How many cases were delivered to each coffee shop each day?

Show your work.



Answer 4 cases

Score Point 3 (out of 3 points)

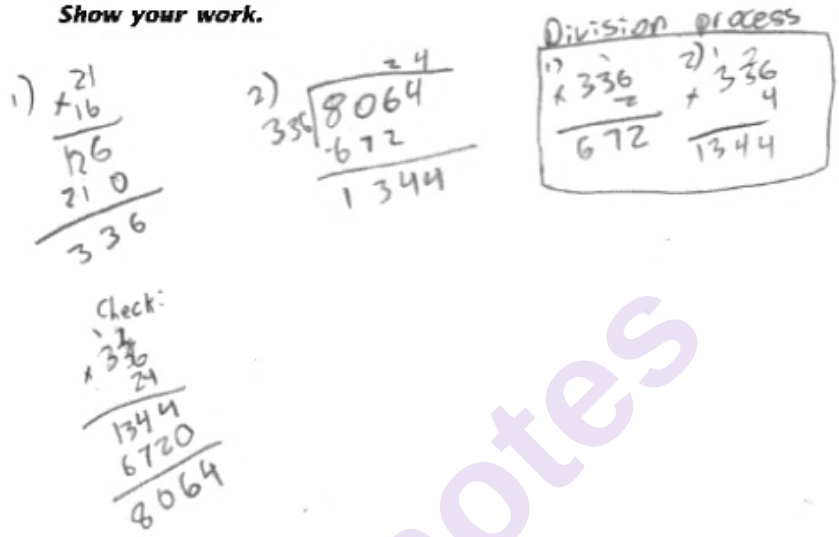
This response demonstrates a thorough understanding of the mathematical concepts in the task. The total number of deliveries for 21 days for all coffee shops is correctly calculated and used to determine the number of cartons per delivery and the number of cases for each coffee shop per day. The correct solution is obtained using mathematically sound procedures.

GUIDE PAPER 4

53

A juice company produced 8,064 cartons of juice in 21 days. Each day, they produced the same number of cartons and delivered those cartons to 16 area coffee shops. The cartons were delivered in cases of six cartons per case, and each coffee shop received an equal number of cases in each delivery. How many cases were delivered to each coffee shop each day?

Show your work.



Answer 24 **cases**

Score Point 2 (out of 3 points)

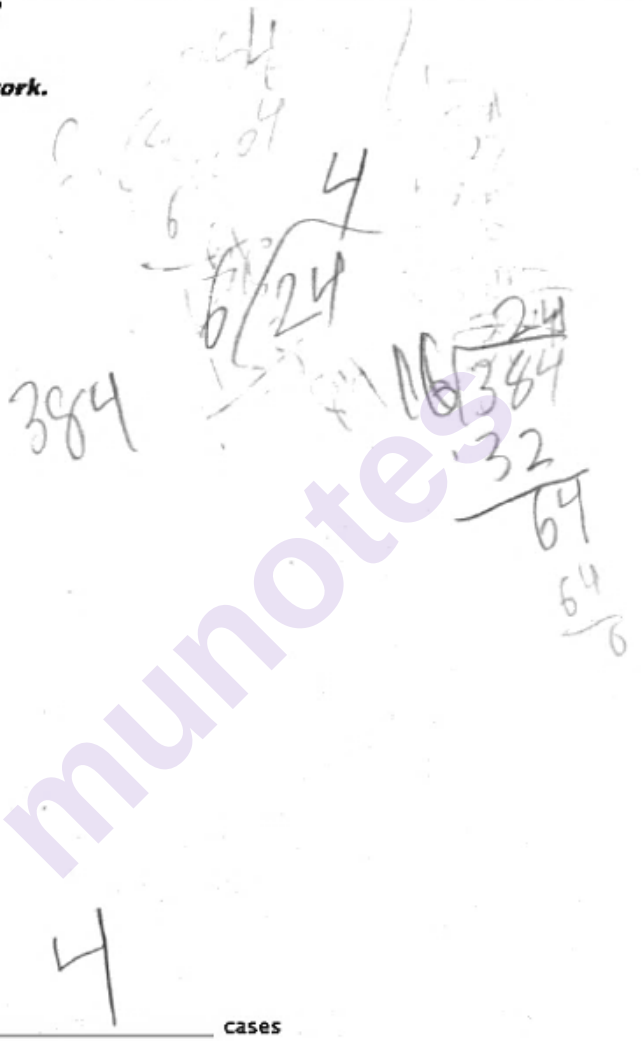
This response demonstrates a partial understanding of the mathematical concepts in the task. The total number of deliveries over 21 days and the total number of cartons per delivery is correctly calculated; however, the number of cases per delivery to each coffee shop is not calculated. This response appropriately addresses most, but not all aspects of the task using mathematically sound procedures.

GUIDE PAPER 5

53

A juice company produced 8,064 cartons of juice in 21 days. Each day, they produced the same number of cartons and delivered those cartons to 16 area coffee shops. The cartons were delivered in cases of six cartons per case, and each coffee shop received an equal number of cases in each delivery. How many cases were delivered to each coffee shop each day?

Show your work.



Answer 4 cases

Score Point 2 (out of 3 points)

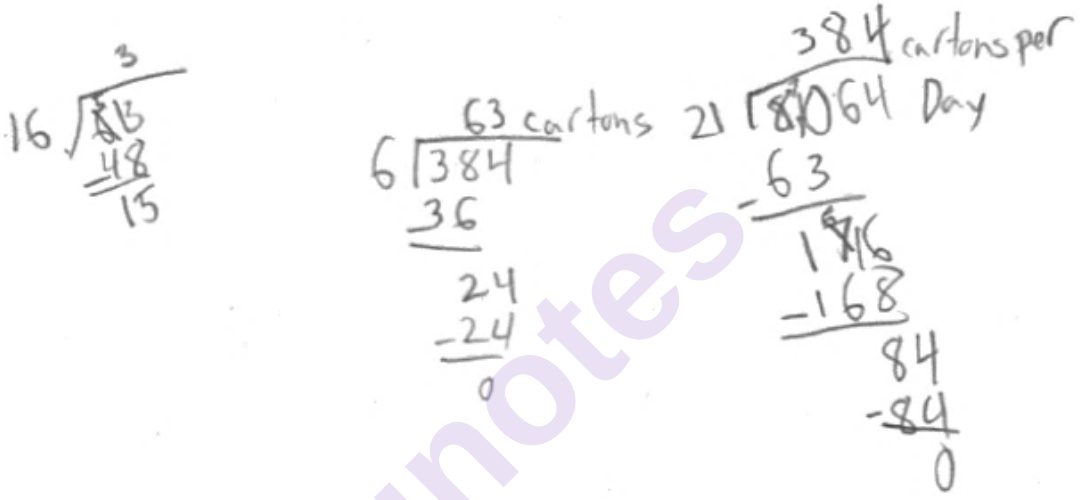
This response demonstrates a partial understanding of the mathematical concepts in the task. The total number of cartons and cases delivered to each coffee shop per day is correctly calculated; however, it is unclear how the number of cartons produced each day is obtained as no work is shown. This response appropriately addresses most, but not all aspects of the task using mathematically sound procedures.

GUIDE PAPER 6

53

A juice company produced 8,064 cartons of juice in 21 days. Each day, they produced the same number of cartons and delivered those cartons to 16 area coffee shops. The cartons were delivered in cases of six cartons per case, and each coffee shop received an equal number of cases in each delivery. How many cases were delivered to each coffee shop each day?

Show your work.



4

Answer _____ cases

Score Point 2 (out of 3 points)

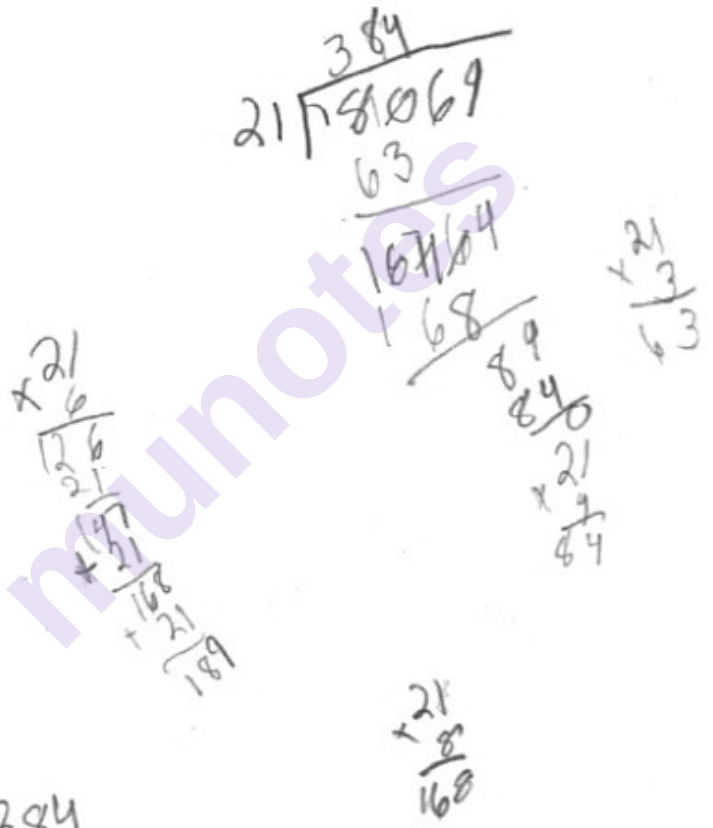
This response demonstrates a partial understanding of the mathematical concepts in the task. The total number of cartons produced each day is correctly calculated; however, the work to determine the number of cases produced each day contains a calculation error ($384 \div 6 = 63$). The calculation to determine the number of cases delivered to each coffee shop per day is rounded to the nearest whole cases. The response reflects some minor misunderstanding of the underlying procedures.

GUIDE PAPER 7

53

A juice company produced 8,064 cartons of juice in 21 days. Each day, they produced the same number of cartons and delivered those cartons to 16 area coffee shops. The cartons were delivered in cases of six cartons per case, and each coffee shop received an equal number of cases in each delivery. How many cases were delivered to each coffee shop each day?

Show your work.



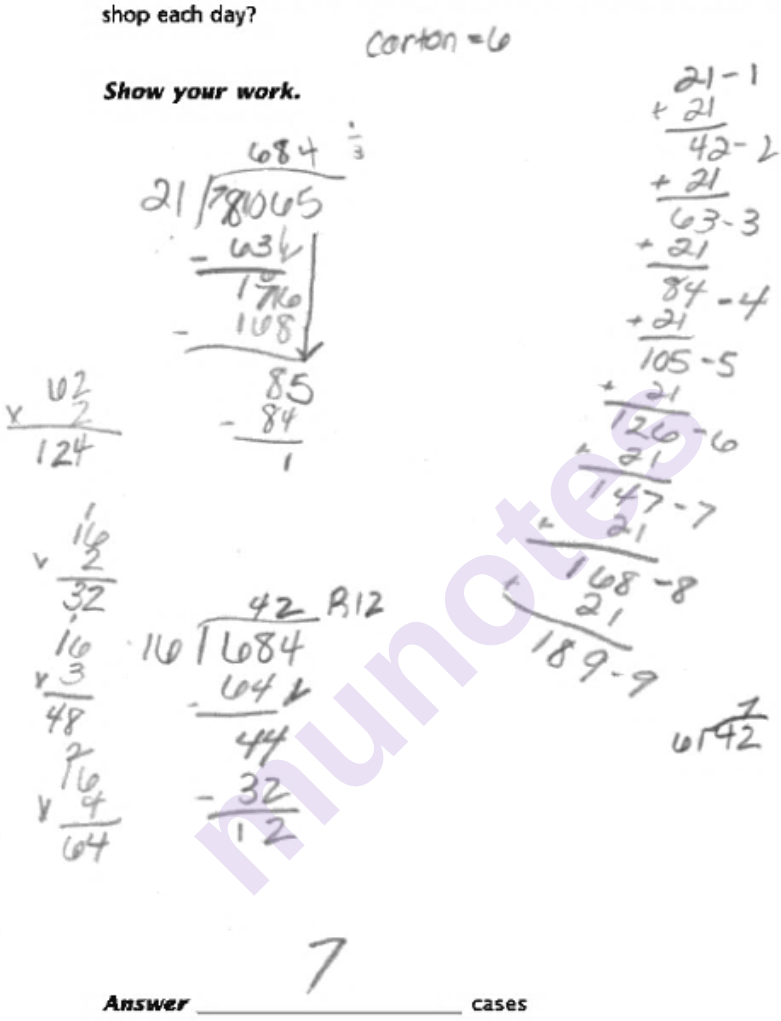
Answer 384 cases

Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts in the task. The total number of cartons produced by the juice company per day is correctly calculated; however, it is misinterpreted as the number of cases delivered to each coffee shop each day. This response reflects a lack of essential understanding of the underlying mathematical concepts.

53

A juice company produced 8,064 cartons of juice in 21 days. Each day, they produced the same number of cartons and delivered those cartons to 16 area coffee shops. The cartons were delivered in cases of six cartons per case, and each coffee shop received an equal number of cases in each delivery. How many cases were delivered to each coffee shop each day?



Score Point 1 (out of 3 points)

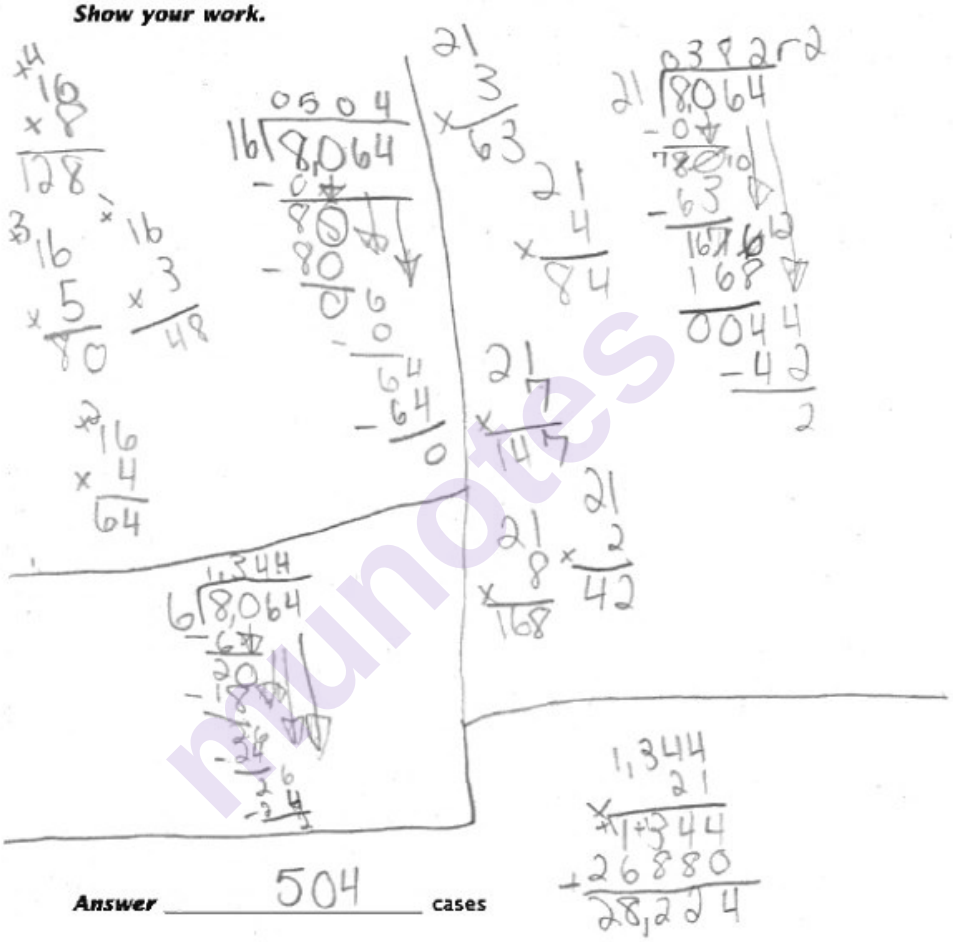
This response demonstrates only a limited understanding of the mathematical concepts in the task. The correct operation to calculate the total number of cartons produced per day is provided; however, a transcription error (8064 → 8065) and a calculation error (8065 ÷ 21 = 684) results in an incorrect number of cartons per day. The calculated number of cartons per day is correctly divided by the 16 coffee shops which are then divided by the number of cartons per cases to arrive at the solution; however, remainders are ignored in the work. This response exhibits multiple flaws related to misunderstanding of important aspects of the task.

GUIDE PAPER 9

53

A juice company produced 8,064 cartons of juice in 21 days. Each day, they produced the same number of cartons and delivered those cartons to 16 area coffee shops. The cartons were delivered in cases of six cartons per case, and each coffee shop received an equal number of cases in each delivery. How many cases were delivered to each coffee shop each day?

Show your work.



Answer 504 **cases**

Score Point 1 (out of 3 points)

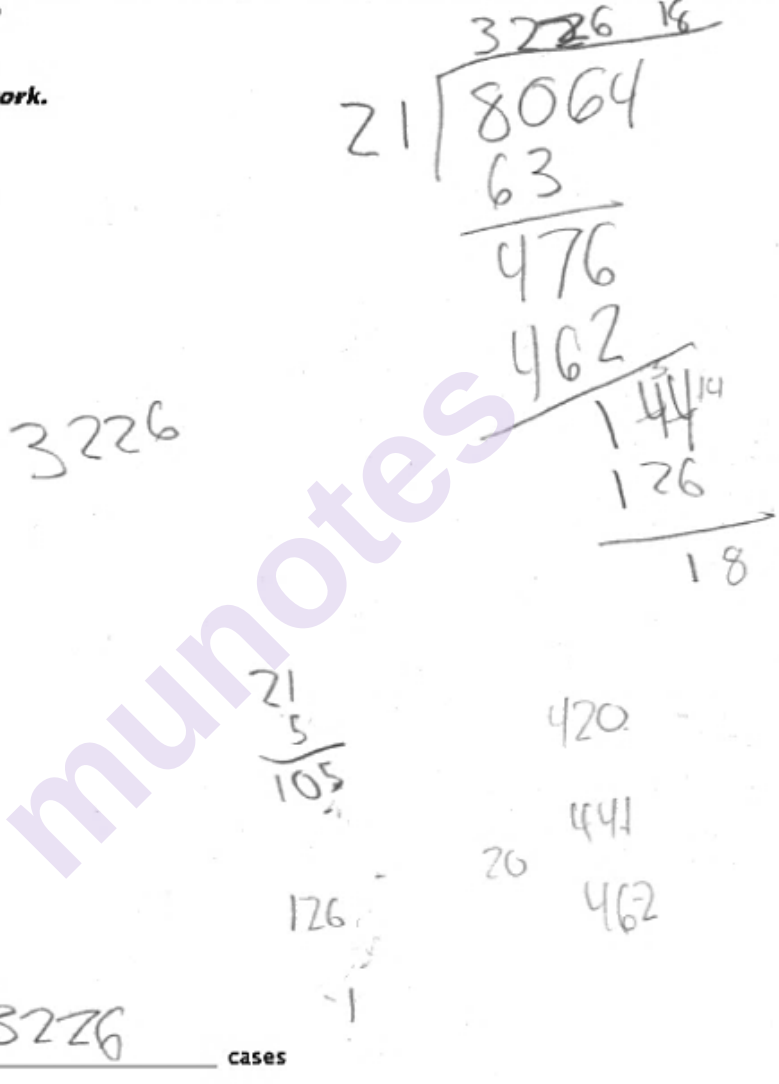
This response demonstrates only a limited understanding of the mathematical concepts in the task. The total number of cartons per coffee shop for the 21 days, the total number of cartons per day, and the total number of cases produced in 21 days are all calculated; however, the total number of cartons delivered per coffee shop over the 21 days is incorrectly chosen as the solution. This response reflects a lack of essential understanding of the underlying mathematical concepts of the task.

GUIDE PAPER 10

53

A juice company produced 8,064 cartons of juice in 21 days. Each day, they produced the same number of cartons and delivered those cartons to 16 area coffee shops. The cartons were delivered in cases of six cartons per case, and each coffee shop received an equal number of cases in each delivery. How many cases were delivered to each coffee shop each day?

Show your work.



Answer 3226 **cases**

Score Point 0 (out of 3 points)

Although an appropriate division operation to determine the total number of cartons produced each day is provided, the solution contains a calculation error and no other work is provided. Holistically, this response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task.

53

A juice company produced 8,064 cartons of juice in 21 days. Each day, they produced the same number of cartons and delivered those cartons to 16 area coffee shops. The cartons were delivered in cases of six cartons per case, and each coffee shop received an equal number of cases in each delivery. How many cases were delivered to each coffee shop each day?

Show your work.

Skp 1

21 | 8064

Answer 4 cases

Score Point 0 (out of 3 points)

Although an appropriate division operation to determine the total number of cartons produced each day is provided, the calculation is not completed. The correct solution is not supported by the work. This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task.

54

For 4 weeks in June, Cameron biked $3\frac{1}{4}$ miles each week and swam $2\frac{1}{2}$ miles each week. For 3 weeks in July, he biked $4\frac{3}{4}$ miles each week and swam $3\frac{1}{2}$ miles each week.

How much greater was the total distance Cameron biked and swam in July compared to the total distance he biked and swam in June?

Show your work.

Answer _____ mile(s)

EXEMPLARY RESPONSE

54

For 4 weeks in June, Cameron biked $3\frac{1}{4}$ miles each week and swam $2\frac{1}{2}$ miles each week. For 3 weeks in July, he biked $4\frac{3}{4}$ miles each week and swam $3\frac{1}{2}$ miles each week.

How much greater was the total distance Cameron biked and swam in July compared to the total distance he biked and swam in June?

Show your work.

June:

3¼ × 4 = 13 miles biked

2½ × 4 = 10 miles swam

13 + 10 = 23 total miles

July:

4¾ × 3 = 14¼ miles biked

3½ × 3 = 10½ miles swam

14¼ + 10½ = 24¾ total miles

Difference:

24¾ – 23 = 1¾ miles

Or other valid response

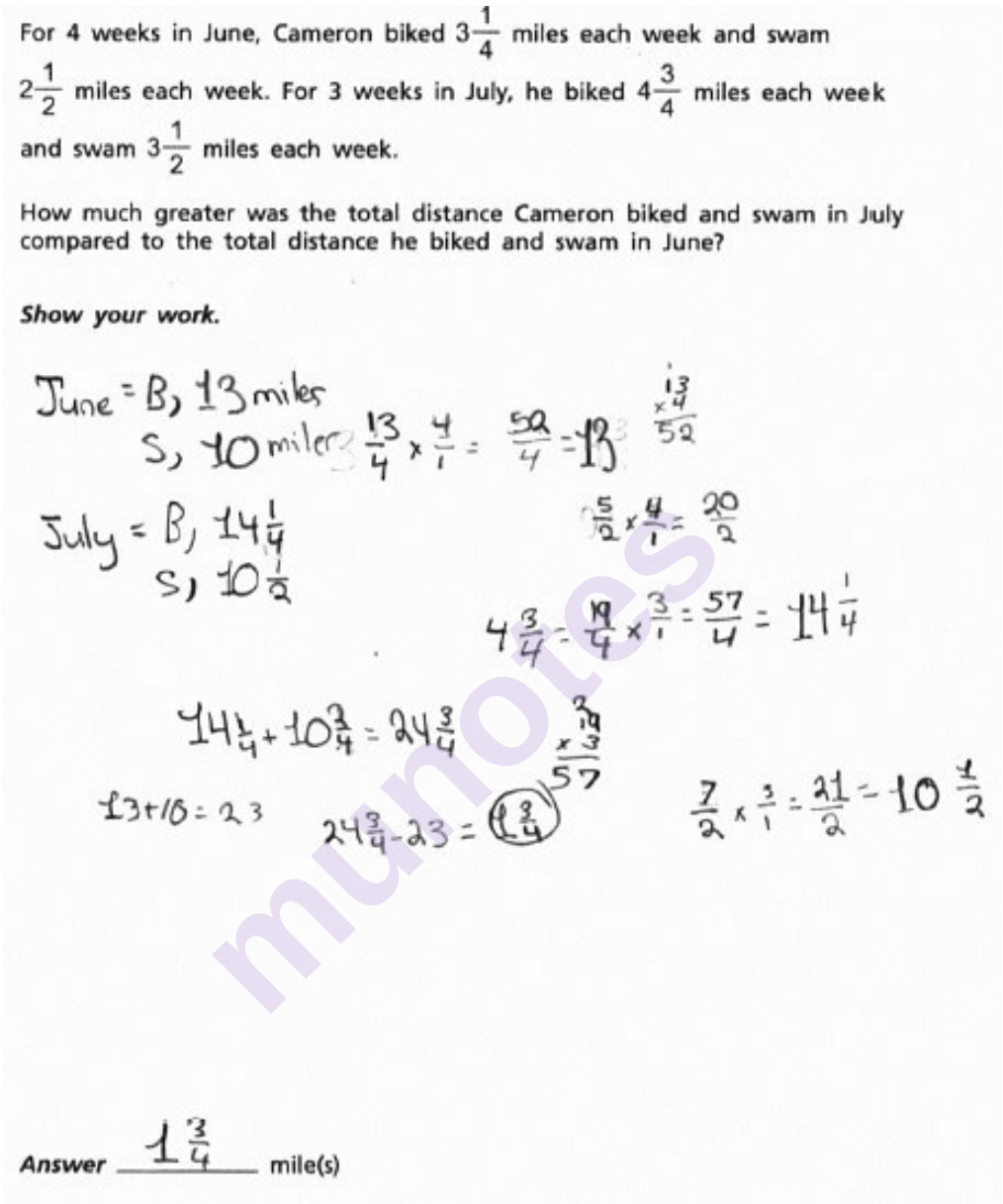
Answer 1¾ mile(s)

54

For 4 weeks in June, Cameron biked $3\frac{1}{4}$ miles each week and swam $2\frac{1}{2}$ miles each week. For 3 weeks in July, he biked $4\frac{3}{4}$ miles each week and swam $3\frac{1}{2}$ miles each week.

How much greater was the total distance Cameron biked and swam in July compared to the total distance he biked and swam in June?

Show your work.



Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The total distance biked and swam in June and July is correctly calculated and the difference between June and July is correctly determined using mathematically sound procedures.

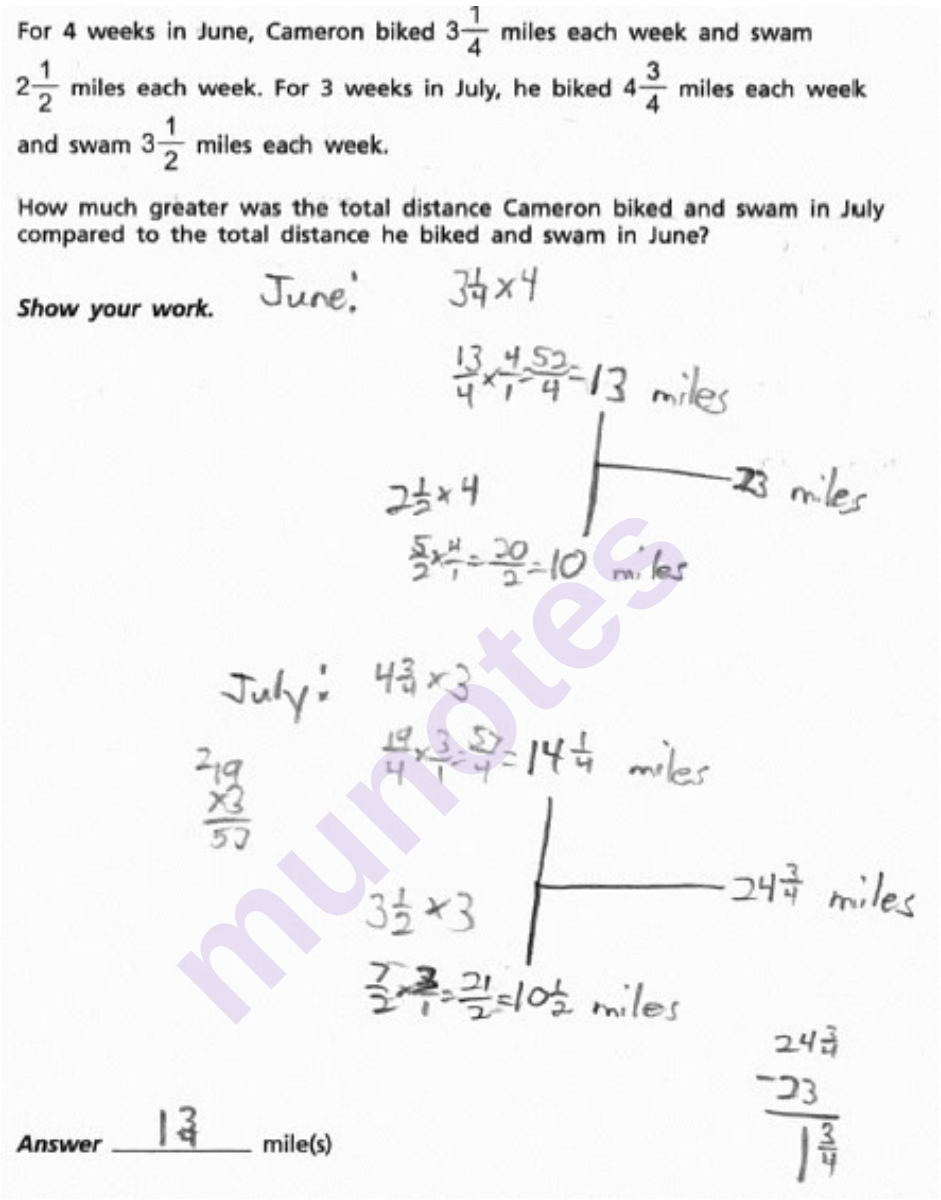
GUIDE PAPER 2

54

For 4 weeks in June, Cameron biked $3\frac{1}{4}$ miles each week and swam $2\frac{1}{2}$ miles each week. For 3 weeks in July, he biked $4\frac{3}{4}$ miles each week and swam $3\frac{1}{2}$ miles each week.

How much greater was the total distance Cameron biked and swam in July compared to the total distance he biked and swam in June?

Show your work.



Answer $1\frac{3}{4}$ mile(s)

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The total distance biked and swam in June and July is correctly calculated and the difference between June and July is correctly determined using mathematically sound procedures.

GUIDE PAPER 3

54

For 4 weeks in June, Cameron biked $3\frac{1}{4}$ miles each week and swam $2\frac{1}{2}$ miles each week. For 3 weeks in July, he biked $4\frac{3}{4}$ miles each week and swam $3\frac{1}{2}$ miles each week.

How much greater was the total distance Cameron biked and swam in July compared to the total distance he biked and swam in June?

Show your work.

June

$3\frac{1}{4} + 2\frac{1}{2} =$

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

$3\frac{1}{4} + 2\frac{2}{4} = 5\frac{3}{4}$

$5\frac{3}{4} \times 4 = 20\frac{12}{4}$

$= 23$ miles total

July

$4\frac{3}{4} + 3\frac{1}{2} =$

$3\frac{1}{2} = 3\frac{2}{4}$

$4\frac{3}{4} + 3\frac{2}{4} = 7\frac{5}{4}$

$7\frac{5}{4} \times 3 = 21\frac{15}{4}$

$= 24\frac{3}{4}$ miles total

Difference

$24\frac{3}{4} - 23 = 1\frac{3}{4}$ m

Answer $1\frac{3}{4}$ mile(s)

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The total distance biked and swam in June and July is correctly calculated and the difference between June and July is correctly determined using mathematically sound procedures.

GUIDE PAPER 4

54

For 4 weeks in June, Cameron biked $3\frac{1}{4}$ miles each week and swam $2\frac{1}{2}$ miles each week. For 3 weeks in July, he biked $4\frac{3}{4}$ miles each week and swam $3\frac{1}{2}$ miles each week.

How much greater was the total distance Cameron biked and swam in July compared to the total distance he biked and swam in June?

Show your work.

$4\frac{3}{4} + 3\frac{1}{2} = 4\frac{3}{4} + 3\frac{2}{4} = 7\frac{5}{4}$

$3\frac{1}{4} + 2\frac{1}{2} = 3\frac{1}{4} + 2\frac{2}{4} = 5\frac{3}{4}$

$7\frac{5}{4} - 5\frac{3}{4} = 2\frac{2}{4}$

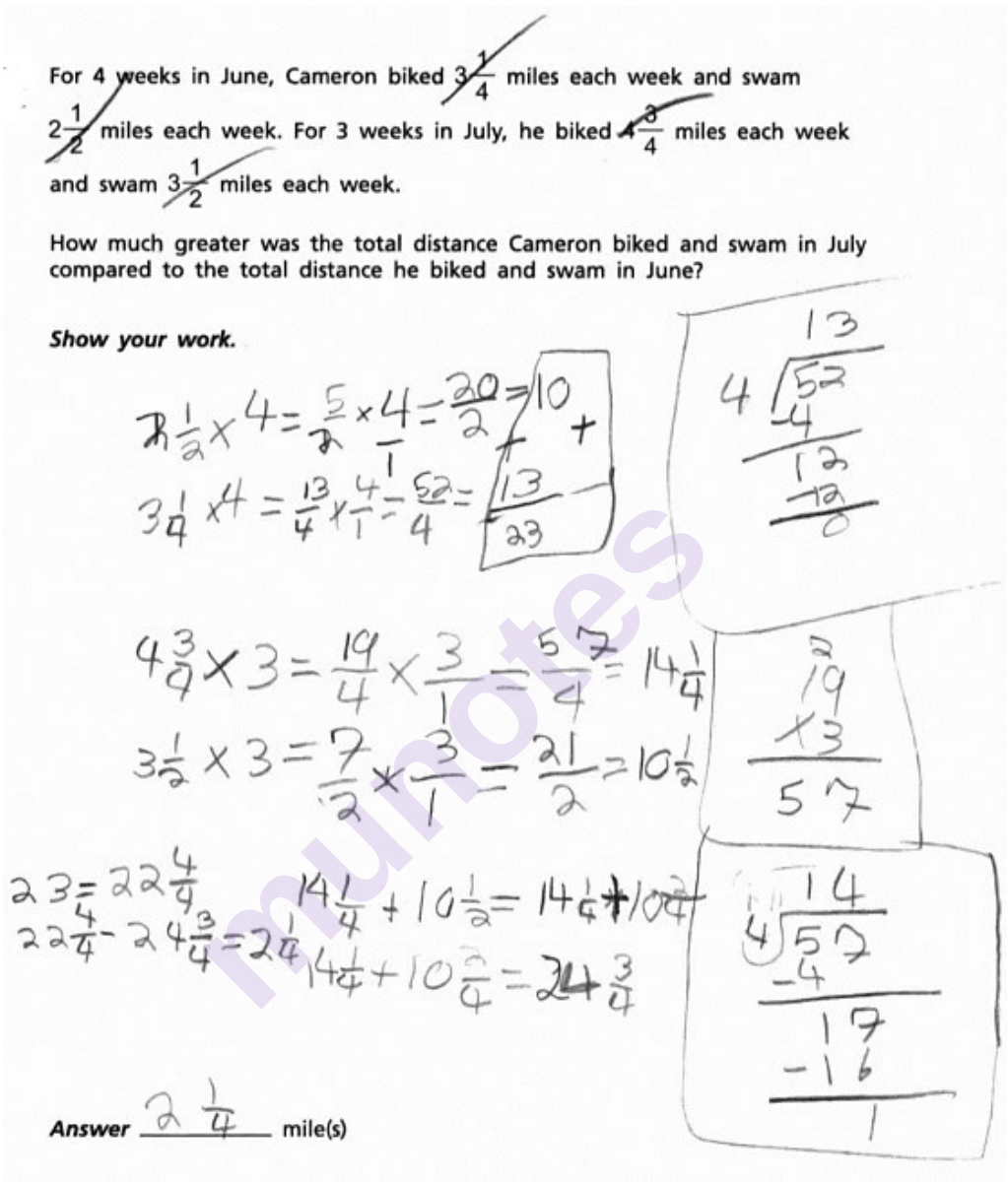
Answer $2\frac{2}{4}$ mile(s)

Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The total miles swam and biked for one week in June and July is correctly calculated and the difference for the one week is correctly determined; however, the difference between the total distances for the whole month is not determined. The response appropriately addresses most, but not all aspects of the task using mathematically sound procedures.

GUIDE PAPER 5

54



For 4 weeks in June, Cameron biked $3\frac{1}{4}$ miles each week and swam $2\frac{1}{2}$ miles each week. For 3 weeks in July, he biked $4\frac{3}{4}$ miles each week and swam $3\frac{1}{2}$ miles each week.

How much greater was the total distance Cameron biked and swam in July compared to the total distance he biked and swam in June?

Show your work.

$2\frac{1}{2} \times 4 = \frac{5}{2} \times \frac{4}{1} = \frac{20}{2} = 10$ +

$3\frac{1}{4} \times 4 = \frac{13}{4} \times \frac{4}{1} = \frac{52}{4} = 13$

23

13
4 52
4
12
12
0

$4\frac{3}{4} \times 3 = \frac{19}{4} \times \frac{3}{1} = \frac{57}{4} = 14\frac{1}{4}$

$3\frac{1}{2} \times 3 = \frac{7}{2} \times \frac{3}{1} = \frac{21}{2} = 10\frac{1}{2}$

2
19
×3
57

$23 = 22\frac{4}{4}$

$22\frac{4}{4} - 24\frac{3}{4} = 21$

$14\frac{1}{4} + 10\frac{1}{2} = 14\frac{1}{4} + 10\frac{2}{4} = 24\frac{3}{4}$

14
4 57
-4
17
-16
1

Answer $2\frac{1}{4}$ mile(s)

Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The total distance biked and swam in June and July is correctly calculated; however, the July total is improperly and incorrectly subtracted from the June total for an incorrect solution. This response reflects some minor misunderstanding of the underlying mathematical concepts.

GUIDE PAPER 6

54

For 4 weeks in June, Cameron biked $3\frac{1}{4}$ miles each week and swam $2\frac{1}{2}$ miles each week. For 3 weeks in July, he biked $4\frac{3}{4}$ miles each week and swam $3\frac{1}{2}$ miles each week.

How much greater was the total distance Cameron biked and swam in July compared to the total distance he biked and swam in June?

Show your work.

July

$4\frac{3}{4}$
$4\frac{3}{4}$
$4\frac{3}{4}$
$14\frac{1}{4}$ m

$3\frac{1}{2}$
$3\frac{1}{2}$
$3\frac{1}{2}$
$10\frac{1}{2}$

$24\frac{3}{4}$ m

June

4 weeks

$3\frac{1}{4}$
$3\frac{1}{4}$
$3\frac{1}{4}$
$3\frac{1}{4}$
13 m

$2\frac{1}{2}$
$2\frac{1}{2}$
$2\frac{1}{2}$
$2\frac{1}{2}$
10m

13+10=23m

Answer 1 mile(s)

Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The total distance biked and swam in June and July is correctly calculated and the total for each month is correctly determined; however, it is unclear how the solution on the answer blank was determined as no operation is explicitly provided. This response contains an incorrect solution but provides sound procedures.

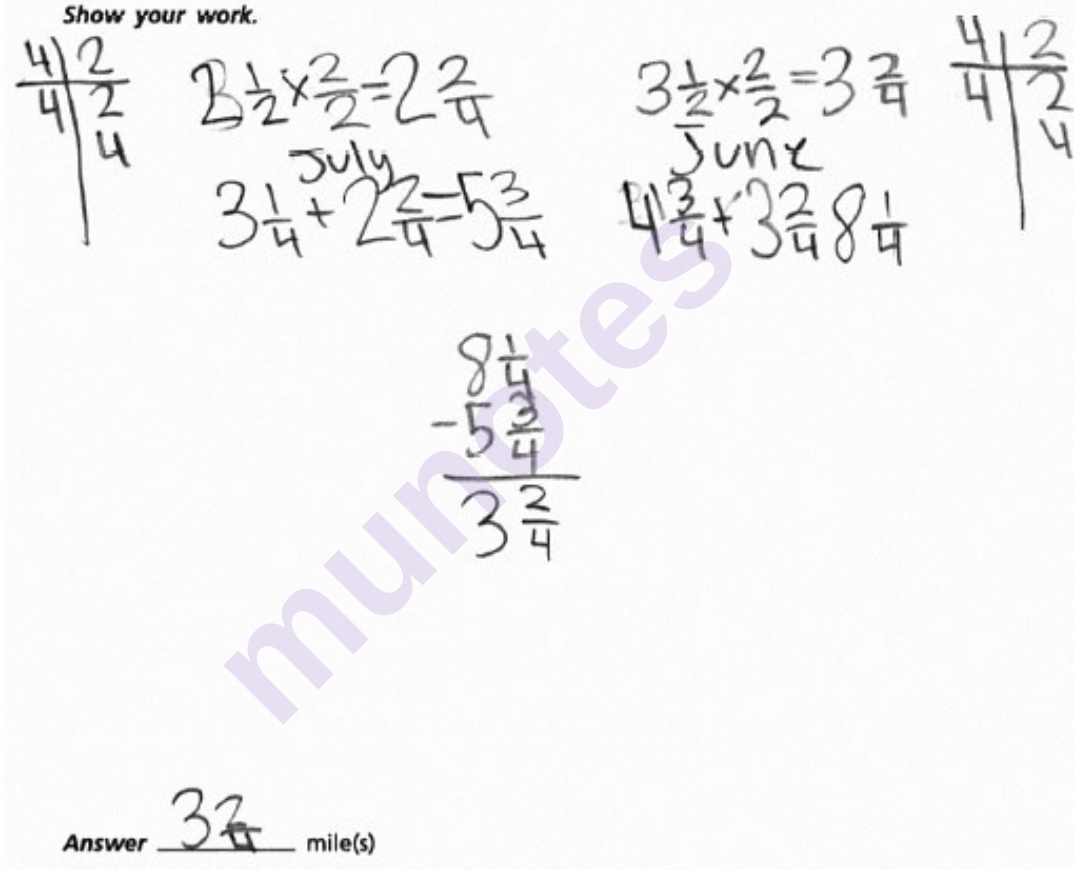
GUIDE PAPER 7

54

For 4 weeks in June, Cameron biked $3\frac{1}{4}$ miles each week and swam $2\frac{1}{2}$ miles each week. For 3 weeks in July, he biked $4\frac{3}{4}$ miles each week and swam $3\frac{1}{2}$ miles each week.

How much greater was the total distance Cameron biked and swam in July compared to the total distance he biked and swam in June?

Show your work.



Answer 3 2/4 mile(s)

Score Point 1 (out of 3 points)

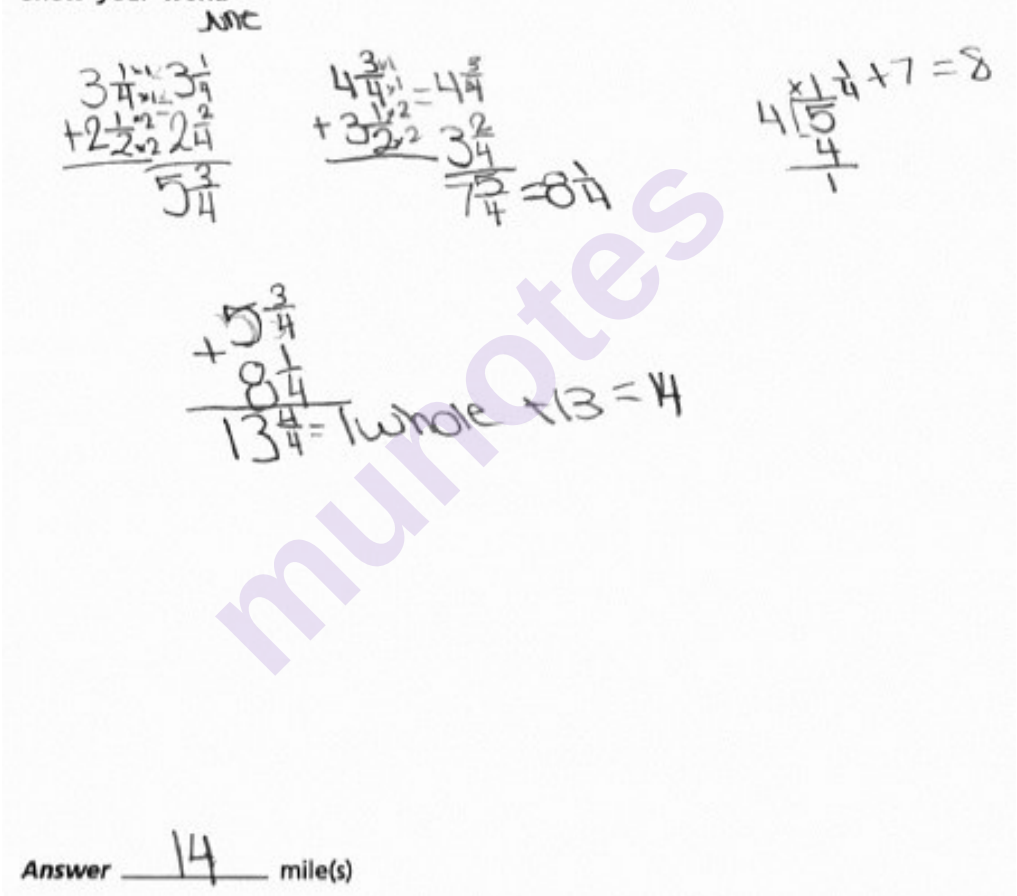
This response demonstrates only a limited understanding of the mathematical concepts in the task. The total miles swam and biked for one week in June and July is correctly calculated; however, the total distances swam and biked for each month is not addressed. The operation to determine the difference in distance for one week is correctly provided; however, there is a calculation error in the subtraction. The response addresses some elements of the task correctly but reaches an inadequate solution due to faulty and incomplete reasoning.

54

For 4 weeks in June, Cameron biked $3\frac{1}{4}$ miles each week and swam $2\frac{1}{2}$ miles each week. For 3 weeks in July, he biked $4\frac{3}{4}$ miles each week and swam $3\frac{1}{2}$ miles each week.

How much greater was the total distance Cameron biked and swam in July compared to the total distance he biked and swam in June?

Show your work.



Answer 14 mile(s)

Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts in the task. The total miles swam and biked in one week for June and July is correctly calculated; however, the total miles for each month are not calculated. The total miles for one week in June and July are inappropriately added instead of determining the difference. The response exhibits multiple flaws related to misunderstanding of important aspects of the task.

GUIDE PAPER 9

54

For 4 weeks in June, Cameron biked $3\frac{1}{4}$ miles each week and swam $2\frac{1}{2}$ miles each week. For 3 weeks in July, he biked $4\frac{3}{4}$ miles each week and swam $3\frac{1}{2}$ miles each week.

How much greater was the total distance Cameron biked and swam in July compared to the total distance he biked and swam in June?

Show your work.

$3\frac{1}{4}$

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

$5\frac{3}{4}$

June = $5\frac{3}{4}$

July = $4\frac{3}{4} + 3\frac{2}{4} = 7\frac{5}{4}$

$7\frac{5}{4}$

Answer _____ mile(s)

Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts in the task. The total miles swam and biked in one week for both June and July is correctly calculated; however, the total miles for each month and the difference in total miles between the months are not determined. The response addresses some elements of the task correctly but reaches an inadequate solution and provides reasoning that is incomplete.

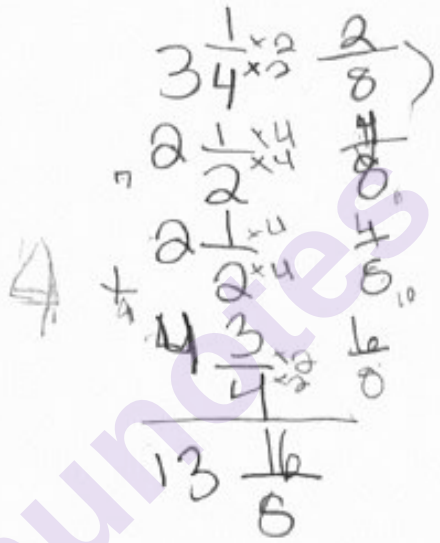
GUIDE PAPER 10

54

For 4 weeks in June, Cameron biked $3\frac{1}{4}$ miles each week and swam $2\frac{1}{2}$ miles each week. For 3 weeks in July, he biked $4\frac{3}{4}$ miles each week and swam $3\frac{1}{2}$ miles each week.

How much greater was the total distance Cameron biked and swam in July compared to the total distance he biked and swam in June?

Show your work.



Answer 13 16/8 mile(s)

Score Point 0 (out of 3 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. All distances in the prompt are added and the sum is incorrect. The solution is incorrect and irrelevant.

54

For 4 weeks in June, Cameron biked $3\frac{1}{4}$ miles each week and swam $2\frac{1}{2}$ miles each week. For 3 weeks in July, he biked $4\frac{3}{4}$ miles each week and swam $3\frac{1}{2}$ miles each week.

How much greater was the total distance Cameron biked and swam in July compared to the total distance he biked and swam in June?

Show your work.

$2\frac{2}{4}$
$3\frac{2}{4}$
$4\frac{3}{4}$
$+\ 3\frac{1}{4}$
$12\frac{8}{4}$
$-\ 2$
14

$4\overline{)8}\ 2$

Answer 14 mile(s)

Score Point 0 (out of 3 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. All distances in the prompt are added and the sum is incorrect. The solution is incorrect and irrelevant.

55

The table below shows part of the operating budget of a small dairy farm for last year. The only expense not listed in the table is maintenance.

LAST YEAR'S OPERATING BUDGET

Expense	Fraction of Budget
Food	$\frac{1}{3}$
Housing	$\frac{1}{3}$
Medical Care	$\frac{1}{4}$

This year, the managers of the farm will change the fraction of the budget for housing to $\frac{1}{8}$ but will leave the fraction of the budget for food and medical care the same. Again, the remaining portion of the budget will be for maintenance expenses. What is the difference between the fraction of the budget for maintenance this year and last year?

Show your work.

Answer _____

EXEMPLARY RESPONSE

55

The table below shows part of the operating budget of a small dairy farm for last year. The only expense not listed in the table is maintenance.

LAST YEAR'S OPERATING BUDGET

Expense	Fraction of Budget
Food	$\frac{1}{3}$
Housing	$\frac{1}{3}$
Medical Care	$\frac{1}{4}$

This year, the managers of the farm will change the fraction of the budget for housing to $\frac{1}{8}$ but will leave the fraction of the budget for food and medical care the same. Again, the remaining portion of the budget will be for maintenance expenses. What is the difference between the fraction of the budget for maintenance this year and last year?

Show your work.

Last year: $1/3 + 1/3 + 1/4 + x = 1$

$4/12 + 4/12 + 3/12 + x = 12/12$

$11/12 + x = 12/12$

$x = 1/12$

This year: $1/3 + 1/8 + 1/4 + y = 1$

$8/24 + 3/24 + 6/24 + y = 24/24$

$17/24 + y = 24/24$

$y = 7/24$

Difference in maintenance cost between the two years:

$7/24 - 1/12 = 7/24 - 2/24 = 5/24$

Or other valid response

Answer $5/24$

55

The table below shows part of the operating budget of a small dairy farm for last year. The only expense not listed in the table is maintenance.

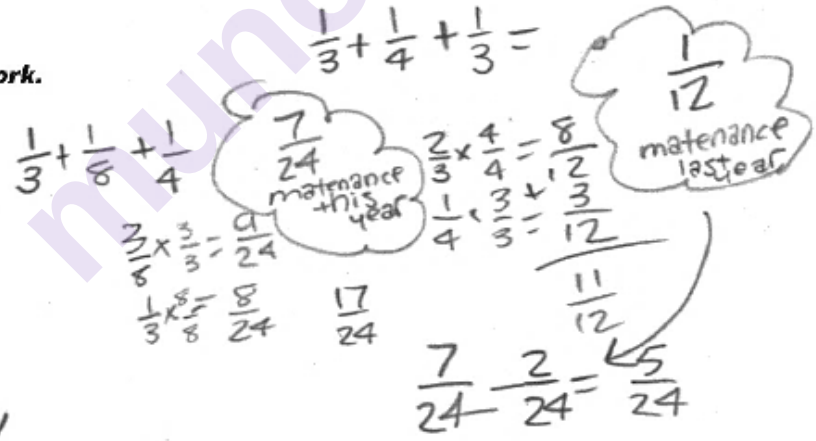
LAST YEAR'S OPERATING BUDGET

Expense	Fraction of Budget
Food	$\frac{1}{3}$
Housing	$\frac{1}{8}$
Medical Care	$\frac{1}{4}$

maintenance = ?

This year, the managers of the farm will change the fraction of the budget for housing to $\frac{1}{8}$ but will leave the fraction of the budget for food and medical care the same. Again, the remaining portion of the budget will be for maintenance expenses. What is the difference between the fraction of the budget for maintenance this year and last year?

Show your work.



Answer 5/24

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. Appropriate and correct addition and subtraction of fractions is used to correctly determine the difference between the fraction of the budget for maintenance this year and last year using mathematically sound procedures.

GUIDE PAPER 2

55

The table below shows part of the operating budget of a small dairy farm for last year. The only expense not listed in the table is maintenance.

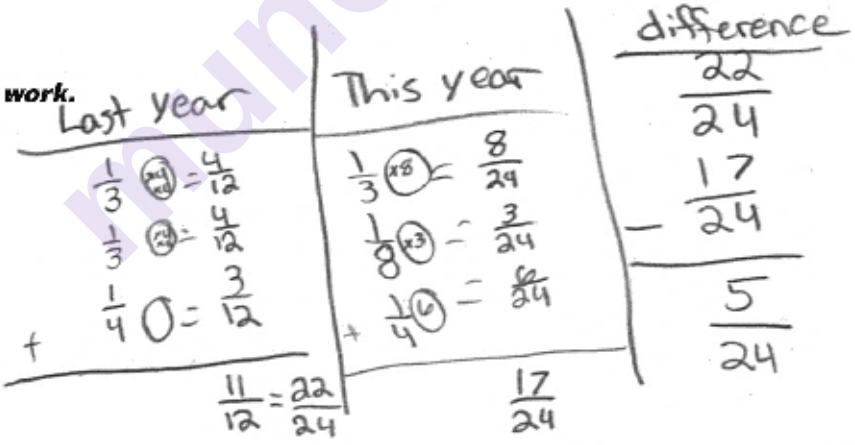
LAST YEAR'S OPERATING BUDGET

Expense	Fraction of Budget
Food	$\frac{1}{3}$
Housing	$\frac{1}{3}$
Medical Care	$\frac{1}{4}$

$\frac{1}{8}$ This year

This year, the managers of the farm will change the fraction of the budget for housing to $\frac{1}{8}$ but will leave the fraction of the budget for food and medical care the same. Again, the remaining portion of the budget will be for maintenance expenses. What is the difference between the fraction of the budget for maintenance this year and last year?

Show your work.



Answer $\frac{5}{24}$

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. Appropriate and correct addition and subtraction of fractions is used to correctly determine the difference between the fraction of the budget for maintenance this year and last year using mathematically sound procedures.

GUIDE PAPER 3

55

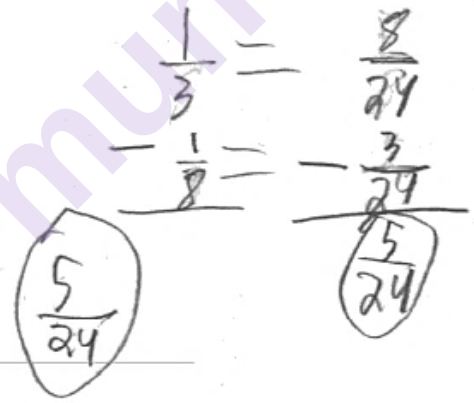
The table below shows part of the operating budget of a small dairy farm for last year. The only expense not listed in the table is maintenance.

LAST YEAR'S OPERATING BUDGET

Expense	Fraction of Budget
Food	$\frac{1}{3}$
Housing	$\frac{1}{3}$
Medical Care	$\frac{1}{4}$

This year, the managers of the farm will change the fraction of the budget for housing to $\frac{1}{8}$ but will leave the fraction of the budget for food and medical care the same. Again, the remaining portion of the budget will be for maintenance expenses. What is the difference between the fraction of the budget for maintenance this year and last year?

Show your work.



Answer _____

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The difference between the fraction of the budget for housing this year and last year is calculated correctly using mathematically sound procedures. Since the budget for food and medical care both remained the same from last year to this year, the difference in the budget for maintenance is equal to the difference in the budget for housing.

GUIDE PAPER 4

55

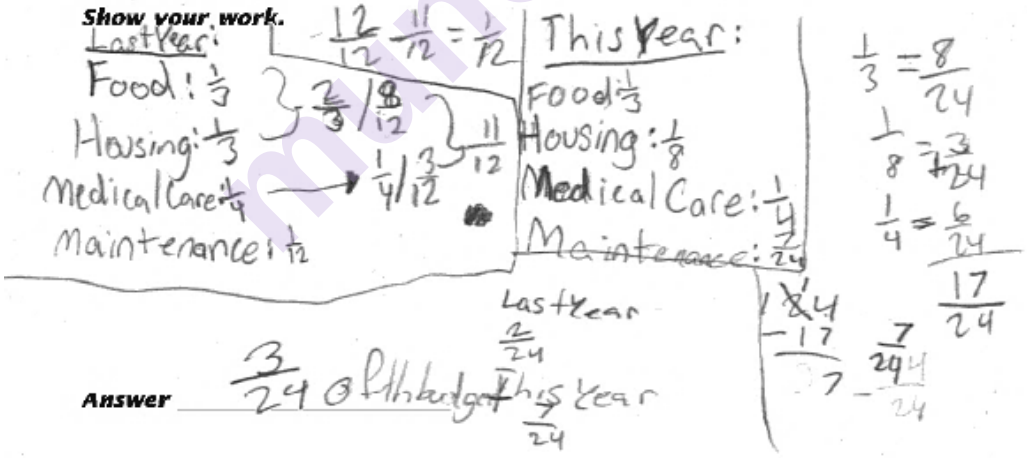
The table below shows part of the operating budget of a small dairy farm for last year. The only expense not listed in the table is maintenance.

LAST YEAR'S OPERATING BUDGET

Expense	Fraction of Budget
Food	$\frac{1}{3}$
Housing	$\frac{1}{3}$
Medical Care	$\frac{1}{4}$

This year, the managers of the farm will change the fraction of the budget for housing to $\frac{1}{8}$ but will leave the fraction of the budget for food and medical care the same. Again, the remaining portion of the budget will be for maintenance expenses. What is the difference between the fraction of the budget for maintenance this year and last year?

Show your work.



Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. Appropriate and correct addition and subtraction of fractions is completed to correctly determine the fraction of the budget for maintenance this year and last year; however, the final operation to determine the difference between the two years is not explicitly shown and the solution is incorrect. This response contains an incorrect solution but provides sound procedures.

GUIDE PAPER 5

55

The table below shows part of the operating budget of a small dairy farm for last year. The only expense not listed in the table is maintenance.

LAST YEAR'S OPERATING BUDGET

Expense	Fraction of Budget
Food	$\frac{1}{3}$
Housing	$\frac{1}{3}$
Medical Care	$\frac{1}{4}$

This year, the managers of the farm will change the fraction of the budget for housing to $\frac{1}{8}$ but will leave the fraction of the budget for food and medical care the same. Again, the remaining portion of the budget will be for maintenance expenses. What is the difference between the fraction of the budget for maintenance this year and last year?

Show your work.

$\frac{1}{3} \times 8 = \frac{8}{24} + \frac{3}{24} + \frac{6}{24} = \frac{17}{24}$

$\frac{1}{8} \times 3 = \frac{3}{24}$

$\frac{1}{4} \times 6 = \frac{6}{24}$

Maintenace For This Year

$\frac{1}{3 \times 4} \times 4 = \frac{4}{12} + \frac{4}{12} + \frac{3}{12} = \frac{11}{12}$

$\frac{1}{4} \times 3 = \frac{3}{12}$

Mantenace = $\frac{12}{24}$ For Last Year

17/24 − 2/24 = 15/24

$\frac{15}{24}$

Answer _____

Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. Appropriate and correct addition and subtraction of fractions is completed to correctly determine the fraction of the budget for maintenance for last year; however, the total fraction of the budget for food, housing and medical care for this year is misinterpreted as the maintenance budget, resulting in an incorrect solution. This response reflects some minor misunderstanding of the underlying mathematical concepts.

GUIDE PAPER 6

55

The table below shows part of the operating budget of a small dairy farm for last year. The only expense not listed in the table is maintenance.

LAST YEAR'S OPERATING BUDGET

Expense	Fraction of Budget
Food	$\frac{1}{3}$
Housing	$\frac{1}{3}$
Medical Care	$\frac{1}{4}$

This year, the managers of the farm will change the fraction of the budget for housing to $\frac{1}{8}$ but will leave the fraction of the budget for food and medical care the same. Again, the remaining portion of the budget will be for maintenance expenses. What is the difference between the fraction of the budget for maintenance this year and last year?

Show your work.

$8/24 - 3/24 = 5/24$

The fraction of budge for the housing is 5/24 less than the last years.

Answer 5 2/4 Housing

Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. Appropriate and correct subtraction of fractions is used to correctly determine the difference between the fraction of the budget for housing this year and last year; however, the budget for maintenance is not addressed. Although the difference for maintenance is equal to the difference for housing, the solution is explicitly labeled as "housing". A transcription error is made when providing the solution on the answer blank; however, the correct value appears twice in the work and the error is considered inconsequential. The response appropriately addresses most, but not all aspects of the task using mathematically sound procedures.

GUIDE PAPER 7

55

The table below shows part of the operating budget of a small dairy farm for last year. The only expense not listed in the table is maintenance.

LAST YEAR'S OPERATING BUDGET

Expense	Fraction of Budget
Food	$\frac{1}{3}$
Housing	$\frac{1}{3}$
Medical Care	$\frac{1}{4}$

This year, the managers of the farm will change the fraction of the budget for housing to $\frac{1}{8}$ but will leave the fraction of the budget for food and medical care the same. Again, the remaining portion of the budget will be for maintenance expenses. What is the difference between the fraction of the budget for maintenance this year and last year?

Show your work.

1st year $\frac{4}{12} + \frac{4}{12} + \frac{3}{12} = \frac{11}{12}$ $\frac{12}{12} - \frac{11}{12} = \frac{1}{12}$

$\frac{1}{12}$ maintenance

2nd year

$\frac{1}{8} + \frac{1}{3} + \frac{1}{4} = ?$

$\frac{8}{24} +$

Answer _____

Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts in the task. Appropriate and correct addition and subtraction of the fractions is completed for last year's budget to correctly determine the fraction of the budget for maintenance; however, the fraction of the budget for maintenance this year is not determined and the difference is not calculated. The response reflects a lack of essential understanding of the underlying mathematical concepts.

55

The table below shows part of the operating budget of a small dairy farm for last year. The only expense not listed in the table is maintenance.

LAST YEAR'S OPERATING BUDGET

Expense	Fraction of Budget
Food	$\frac{1}{3}$
Housing	$\frac{1}{3}$
Medical Care	$\frac{1}{4}$

This year, the managers of the farm will change the fraction of the budget for housing to $\frac{1}{8}$ but will leave the fraction of the budget for food and medical care the same. Again, the remaining portion of the budget will be for maintenance expenses. What is the difference between the fraction of the budget for maintenance this year and last year?

Show your work.

$\frac{8}{24} + \frac{3}{24} + \frac{6}{24} = \frac{17}{24}$

Answer $\frac{17}{24}$

Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts in the task. The total fraction for this year's food, housing, and medical care expenses is correctly determined; however, the fraction of the budget for maintenance is not addressed and no calculations are shown for last year's budget. This response addresses some elements of the task correctly but reaches an inadequate solution and provides reasoning that is incomplete.

GUIDE PAPER 9

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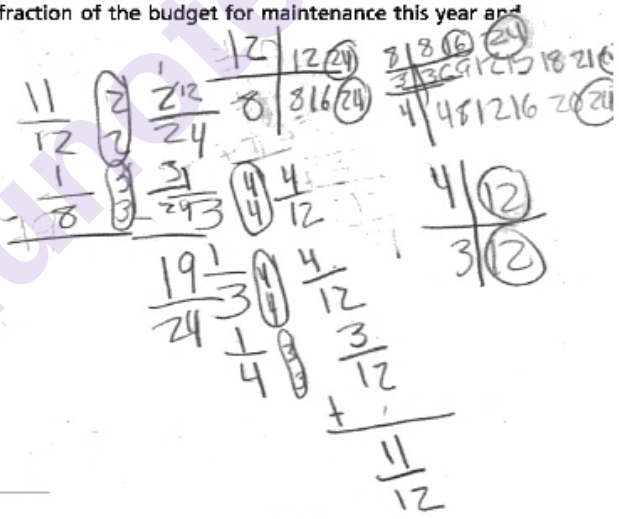
The table below shows part of the operating budget of a small dairy farm for last year. The only expense not listed in the table is maintenance.

LAST YEAR'S OPERATING BUDGET

Expense	Fraction of Budget
Food	$\frac{1}{3}$
Housing	$\frac{1}{3}$
Medical Care	$\frac{1}{4}$

This year, the managers of the farm will change the fraction of the budget for housing to $\frac{1}{8}$ but will leave the fraction of the budget for food and medical care the same. Again, the remaining portion of the budget will be for maintenance expenses. What is the difference between the fraction of the budget for maintenance this year and last year?

Show your work.



Answer $\frac{19}{24}$

Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts in the task. The total fraction for last year's food, housing, and medical care expenses is correctly determined; however, the fraction of the budget for maintenance is not addressed. Additionally, only this year's fraction of the budget for housing is subtracted from last year's non-maintenance expenses without also subtracting this year's fractions for food and medical care. This response exhibits multiple flaws related to misunderstanding of the underlying mathematical concepts.

GUIDE PAPER 10

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The table below shows part of the operating budget of a small dairy farm for last year. The only expense not listed in the table is maintenance.

LAST YEAR'S OPERATING BUDGET

Expense	Fraction of Budget
Food	$\frac{1}{3}$
Housing	$\frac{1}{3}$
Medical Care	$\frac{1}{4}$

This year, the managers of the farm will change the fraction of the budget for housing to $\frac{1}{8}$ but will leave the fraction of the budget for food and medical care the same. Again, the remaining portion of the budget will be for maintenance expenses. What is the difference between the fraction of the budget for maintenance this year and last year?

Show your work.

$\frac{1}{8} - \frac{1}{3} = \frac{7}{24} - \frac{3}{24} = \frac{4}{24} - \frac{4}{24} = \frac{2}{24}$

$\frac{1}{4} - \frac{1}{3} = \frac{3}{12} = \frac{4}{12} - \frac{1}{12} - \frac{4}{12} = \frac{3}{12} = \frac{6}{24}$

That last years maintence was more than this years maintence.

Answer $\frac{2}{24}$

Score Point 0 (out of 3 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The work and solution are incorrect.

55

The table below shows part of the operating budget of a small dairy farm for last year. The only expense not listed in the table is maintenance.

LAST YEAR'S OPERATING BUDGET

Expense	Fraction of Budget
Food	$\frac{1}{3}$
Housing	$\frac{1}{3}$
Medical Care	$\frac{1}{4}$

This year, the managers of the farm will change the fraction of the budget for housing to $\frac{1}{8}$ but will leave the fraction of the budget for food and medical care the same. Again, the remaining portion of the budget will be for maintenance expenses. What is the difference between the fraction of the budget for maintenance this year and last year?

Show your work.

$1/4 \times 3 - 1/3 \times 8$

$3/24 - 8/24 = 6/24$

$13 - 7 = 6/24$

Answer 6/24

Score Point 0 (out of 3 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The work and solution are incorrect.