



***New York State
Testing Program***

2018

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

$$V = Bh \text{ or } V = lwh$$

2-Point Holistic Rubric

2 Point	<p>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.</p> <p>This response</p> <ul style="list-style-type: none">• 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	<p>A one-point response demonstrates only a partial understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none">• 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*	<p>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.</p>

* 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

3 Point	<p>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.</p> <p>This response</p> <ul style="list-style-type: none">• 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	<p>A two-point response demonstrates a partial understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none">• 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	<p>A one-point response demonstrates only a limited understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none">• 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*	<p>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.</p>

* 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).

2018 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 space, 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. If the student provides more than one response, but does not indicate which response is to be considered the correct response and none has been crossed out, the student shall not receive full credit.
8. If the student makes a conceptual error (that is an error in understanding rather than an arithmetic or computational error), that student shall not receive more than 50% credit.
9. Trial-and-error responses are **not** subject to Scoring Policy #6 above, since crossing out is part of the trial-and-error process.
10. 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.
11. In questions requiring number sentences, the number sentences must be written horizontally.
12. When measuring angles with a protractor, there is a +/- 5 degrees deviation allowed of the true measure.
13. 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.

Samantha is using a 2-liter pitcher to serve lemonade to 10 of her friends. How many times will she need to fill the pitcher in order to serve each friend 400 milliliters of lemonade?

Show your work.

Answer _____ times

EXEMPLARY RESPONSE

39

Samantha is using a 2-liter pitcher to serve lemonade to 10 of her friends. How many times will she need to fill the pitcher in order to serve each friend 400 milliliters of lemonade?

Show your work.

2 L = 2,000 mL in one pitcher

$400 \times 10 = 4,000$ mL needed to serve 10 friends

$4,000 \div 2,000 = 2$ times to fill the pitcher

Or other valid process

Answer _____ times

39

Samantha is using a 2-liter pitcher to serve lemonade to 10 of her friends. How many times will she need to fill the pitcher in order to serve each friend 400 milliliters of lemonade?

Show your work.

1 L = 1,000 mL
2 L = 2,000 mL

1 time. $10 \overline{) 2,000}$
 $\begin{array}{r} 200 \\ - 2,000 \\ \hline 0,000 \end{array}$ + = 4

2 times. $10 \overline{) 2,000}$
 $\begin{array}{r} 200 \\ - 2,000 \\ \hline 0,000 \end{array}$

Answer 2 times

DO NOT WRITE BEYOND THIS AREA

Score Point (2 out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The amount of lemonade that can be served to each friend using a 2-liter pitcher is correctly calculated and the number of times to fill the pitcher to serve 400 mL is correctly determined using mathematically sound procedures.

GUIDE PAPER 2

39

Samantha is using a 2-liter pitcher to serve lemonade to 10 of her friends. How many times will she need to fill the pitcher in order to serve each friend 400 milliliters of lemonade?

Show your work.

~~10 x 400 = 4000~~

~~10 x 400 = 4000~~

$2\text{ L} = 2000\text{ mL}$

$$\begin{array}{r} 400 \\ \times 10 \\ \hline 4000 \end{array}$$

$4000 \div 2000 = 2$

Answer 2 times

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The amount of lemonade needed to serve 10 friends is correctly calculated and the number of times to fill the pitcher is correctly determined using mathematically sound procedures.

GUIDE PAPER 3

39

Samantha is using a 2-liter pitcher to serve lemonade to 10 of her friends. How many times will she need to fill the pitcher in order to serve each friend 400 milliliters of lemonade?

Show your work.

milliliters

$$2,000 \div 400 = 5 \text{ friends}$$
$$2,000 \div 400 = 5 \text{ friends}$$

$$\begin{array}{r} 5 \\ +5 \\ \hline 10 \end{array}$$

10 friends so it is
2 times she
will need to
refill.

Answer 2 times

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The number of friends that can be served using a 2-liter pitcher is correctly calculated and the number of times to fill the pitcher to serve 10 friends is correctly determined using mathematically sound procedures.

GUIDE PAPER 4

39

Samantha is using a 2-liter pitcher to serve lemonade to 10 of her friends. How many times will she need to fill the pitcher in order to serve each friend 400 milliliters of lemonade?

Show your work: $2L = 2,000 \text{ ml}$

$$\begin{array}{r} 4,000 \text{ ml} \\ - \quad 2L \\ \hline 2,000 \text{ mL} \\ - \quad 2L \\ \hline 0 \end{array}$$

$$\begin{array}{r} 400 \\ 10 \\ \hline \times \\ 000 \\ 4000 \\ \hline 4,000 \end{array}$$

Amount of Friends mL

$$\begin{array}{r} 2,000 \\ + 2,000 \\ \hline 4,000 \end{array}$$

$$4,000 \text{ ml} = 4L$$

Answer 4 times

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 needed to serve 10 friends is correctly determined; however, the number of liters instead of times to fill the pitcher is calculated and provided as the solution. The response correctly addresses only some elements of the task.

GUIDE PAPER 5

39

Samantha is using a 2-liter pitcher to serve lemonade to 10 of her friends. How many times will she need to fill the pitcher in order to serve each friend 400 milliliters of lemonade?

Show your work.

The student has written the following work:

$$\begin{array}{r} 2 \\ 2 \overline{)4} \\ \underline{-4} \\ 0 \end{array}$$

1 liter = 100 milliliters
2 liter = 200 milliliters
3 liter = 300 milliliters
4 liter = 400 milliliters

Answer 2x times

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. A correct procedure is used to determine the number of times to fill the pitcher; however, a conceptual error is made when converting from liters to milliliters. The response correctly addresses only some elements of the task.

GUIDE PAPER 6

39

Samantha is using a 2-liter pitcher to serve lemonade to 10 of her friends. How many times will she need to fill the pitcher in order to serve each friend 400 milliliters of lemonade?

Show your work.

$$2 \text{ liters} = 200 \text{ milliliters}$$

$$400 \times 10 = 4,000$$

$$4,000 \div 200 = 20$$

Answer 20 times

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 needed to serve 10 friends is correctly calculated. An error is made when converting 2 liters to milliliters. The result is appropriately used to determine a solution. The response contains an incorrect solution but applies a mathematically appropriate process.

GUIDE PAPER 7

39

Samantha is using a 2-liter pitcher to serve lemonade to 10 of her friends. How many times will she need to fill the pitcher in order to serve each friend 400 milliliters of lemonade?

Show your work.

2L

10 friends

4 cups

mL = 100 Liters

400 mL
4 L

2L
10 friends
400 mL
4 L

Answer 42 times

Score Point 0 (out of 2 points)

Although a correct answer is provided, all the conversions are incorrect and holistically this response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task.

Samantha is using a 2-liter pitcher to serve lemonade to 10 of her friends. How many times will she need to fill the pitcher in order to serve each friend 400 milliliters of lemonade?

Show your work.

1 liter = 1000 ml

$$\begin{array}{r} \times 10 \\ 10 \overline{)400} \\ \underline{40} \\ 00 \end{array}$$

kilo liters	deci liters	liters	centi liters	milli liters
----------------	----------------	--------	-----------------	-----------------

3 L 1

Answer 3 times

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 and solution are incorrect.

Write a number in which the value of the digit 3 is 10 times the value of the digit 3 in 156.32. Explain how you know the number you wrote is correct.

Answer

EXEMPLARY RESPONSE

40

Write a number in which the value of the digit 3 is 10 times the value of the digit 3 in 156.32. Explain how you know the number you wrote is correct.

Answer

123.52 Or any other number with 3 in the ones place

The value of the digit 3 in 156.32 is 0.3. Ten times this value is $0.3 \times 10 = 3$.

My number has the digit 3 in the ones place.

Or any other valid explanation

Write a number in which the value of the digit 3 is 10 times the value of the digit 3 in 156.32. Explain how you know the number you wrote is correct.

Answer

I chose 1563.2 because if you use place value and move it one space left (multiplying by 10 each time), the 3 is ten times bigger than before.

×	1000/100	10	1	0.1	0.01	0.001	0.0001	÷
	1	5	6	.	3	2		
	1	5	6	3	2			

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A correct number is written and the explanation is complete and correct.

GUIDE PAPER 2

40

Write a number in which the value of the digit 3 is 10 times the value of the digit 3 in 156.32. Explain how you know the number you wrote is correct.

Answer

153.2 I know this because if you make the 3 ten times bigger you move it to the left to make it bigger

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A correct number is written and the explanation is complete and correct.

GUIDE PAPER 3

40

Write a number in which the value of the digit 3 is 10 times the value of the digit 3 in 156.32. Explain how you know the number you wrote is correct.

Answer

1563.2. I know my number is correct because ten times the value of a number is the number one place value up. So I moved the 3 in the tenths place to the ones place, one place value up.

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A correct number and explanation are provided.

GUIDE PAPER 4

40

Write a number in which the value of the digit 3 is 10 times the value of the digit 3 in 156.32. Explain how you know the number you wrote is correct.

Answer

3. beacouas if you are multipling you go to the left.

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. A correct number is written; however, it is not clear what the phrase “*go to the left*” is referring to. The response contains the correct answer but the explanation is incomplete.

GUIDE PAPER 5

40

Write a number in which the value of the digit 3 is 10 times the value of the digit 3 in 156.32. Explain how you know the number you wrote is correct.

Answer

153.65, i know the number i wrote is correct because if you move the 10 times , means to move to the right , is 153.65

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. A correct number is written; however, it is not clear what the phrase “*to move to the right*” is referring to. The response contains the correct answer but the explanation is incomplete.

GUIDE PAPER 6

40

Write a number in which the value of the digit 3 is 10 times the value of the digit 3 in 156.32. Explain how you know the number you wrote is correct.

Answer

1563.2, I know the number is correct because it is $\frac{1}{10}$ because I moved the decimal one place value to the right.

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. A correct number is written; however, the explanation contains an error (*because it is $\frac{1}{10}$*). The response correctly addresses only some elements of the task.

GUIDE PAPER 7

40

Write a number in which the value of the digit 3 is 10 times the value of the digit 3 in 156.32. Explain how you know the number you wrote is correct.

Answer

153.56, because the 3 in 152.32 can be noticed as 300, so I did 300×10 , and got 3,000.50, I picked a Number with the 3 in the thousandths place.

Score Point 0 (out of 2 points)

Although a correct number is written, it is obtained using an obviously incorrect procedure. Holistically this response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task.

Write a number in which the value of the digit 3 is 10 times the value of the digit 3 in 156.32. Explain how you know the number you wrote is correct.

Answer

156.23 I know the answer is correct because the 3 in the 156.32 is in the 10th place and the 3 in 156.23 is in the 100th place which means it 10 times greater then the other 3 in 156.32.

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 answer and explanation are incorrect.

Mark and his friends order two pizzas of the same size.

- The first pizza is cut into 6 slices of equal size.
- The second pizza is cut into 4 slices of equal size.

Each person plans to take 2 slices of pizza. Mark concludes that he would get more pizza by taking 1 slice from each pizza, instead of 2 slices from the first pizza.

Explain why Mark is correct. Be sure to include a number comparison using $>$ or $<$ in your explanation.

Answer

EXEMPLARY RESPONSE

41

Mark and his friends order two pizzas of the same size.

- The first pizza is cut into 6 slices of equal size.
- The second pizza is cut into 4 slices of equal size.

Each person plans to take 2 slices of pizza. Mark concludes that he would get more pizza by taking 1 slice from each pizza, instead of 2 slices from the first pizza.

Explain why Mark is correct. Be sure to include a number comparison using $>$ or $<$ in your explanation.

Answer

One slice of the first pizza is $\frac{1}{6}$ of the pizza. One slice of the second pizza is $\frac{1}{4}$ of the pizza.

$\frac{1}{4} > \frac{1}{6}$ because $\frac{1}{4}$ has a smaller denominator and the same numerator as $\frac{1}{6}$.

Therefore, the second pizza's slice is larger. Mark would get more pizza by taking one slice of each pizza.

Or other valid explanation

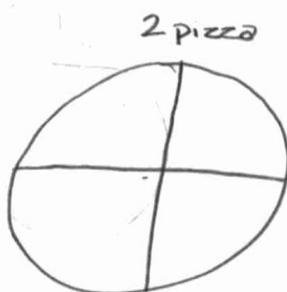
Mark and his friends order two pizzas of the same size.

- The first pizza is cut into 6 slices of equal size.
- The second pizza is cut into 4 slices of equal size.

Each person plans to take 2 slices of pizza. Mark concludes that he would get more pizza by taking 1 slice from each pizza, instead of 2 slices from the first pizza. Explain why Mark is correct. Be sure to include a number comparison using $>$ or $<$ in your explanation.

Answer

Mark is correct because $\frac{1}{4} + \frac{1}{6}$ is $\frac{10}{24}$ and $\frac{1}{6} + \frac{1}{6} = \frac{2}{6}$ or $\frac{8}{24}$. Therefore, $\frac{8}{24} < \frac{10}{24}$ so Mark is correct.



$$\frac{1}{4} + \frac{1}{6} = \frac{10}{24}$$

$$\frac{1}{6} + \frac{1}{6} = \frac{2}{6} = \frac{8}{24}$$

$$\frac{10}{24} > \frac{8}{24}$$

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The explanation is complete and correct.

GUIDE PAPER 2

41

Mark and his friends order two pizzas of the same size.

- The first pizza is cut into 6 slices of equal size.
- The second pizza is cut into 4 slices of equal size.

Each person plans to take 2 slices of pizza. Mark concludes that he would get more pizza by taking 1 slice from each pizza, instead of 2 slices from the first pizza. Explain why Mark is correct. Be sure to include a number comparison using $>$ or $<$ in your explanation.

Answer

If he takes 2 slices from the first pizza, then it would only be $\frac{1}{6} + \frac{1}{6} = \frac{2}{6} = \frac{4}{12}$ of a pizza

But if he takes 1 slice from each, then it would be $\frac{1}{6} + \frac{1}{4}$, or $\frac{2}{12} + \frac{3}{12} = \frac{5}{12}$ of a pizza

Since $\frac{5}{12} > \frac{4}{12}$,

Mark would get more pizza if he got 1 slice from each instead of 2 slices from the first pizza.

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The explanation is complete and correct.

GUIDE PAPER 3

41

Mark and his friends order two pizzas of the same size.

- The first pizza is cut into 6 slices of equal size.
- The second pizza is cut into 4 slices of equal size.

Each person plans to take 2 slices of pizza. Mark concludes that he would get more pizza by taking 1 slice from each pizza, instead of 2 slices from the first pizza. Explain why Mark is correct. Be sure to include a number comparison using $>$ or $<$ in your explanation.

Answer

$$\frac{1}{4} > \frac{1}{6}$$

Mark is correct because having less slices will make the slices bigger if the both pizzas are te same size.

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The explanation is complete and correct.

GUIDE PAPER 4

41

Mark and his friends order two pizzas of the same size.

- The first pizza is cut into 6 slices of equal size.
- The second pizza is cut into 4 slices of equal size.

Each person plans to take 2 slices of pizza. Mark concludes that he would get more pizza by taking 1 slice from each pizza, instead of 2 slices from the first pizza. Explain why Mark is correct. Be sure to include a number comparison using $>$ or $<$ in your explanation.

Answer

Mark is correct because the first pizza is cut into 6ths and he gets one which is $\frac{1}{6}$ then the 2nd pizza is cut into 4ths and 4ths are greater than 6ths.

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

$$\frac{5}{12} - \frac{1}{3} = \frac{1}{12}$$

$$\frac{1}{6} + \frac{1}{4} = \frac{5}{12}$$

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. Although the explanation is correct, it does not include a number comparison using a greater than or less than symbol. The response correctly addresses only some elements of the task.

GUIDE PAPER 5

41

Mark and his friends order two pizzas of the same size.

- The first pizza is cut into 6 slices of equal size.
- The second pizza is cut into 4 slices of equal size.

Each person plans to take 2 slices of pizza. Mark concludes that he would get more pizza by taking 1 slice from each pizza, instead of 2 slices from the first pizza. Explain why Mark is correct. Be sure to include a number comparison using $>$ or $<$ in your explanation.

Answer

Mark is correct because $1/6 + 1/4$ is $10/24$
if you add $1/6 + 1/6$ you get $1/12$ and $10/24$ is greater than $1/12$ $10/24 > 1/12$

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The explanation is partially correct. A calculation error is made when determining the second fraction. The two numbers are correctly compared. The response correctly addresses only some elements of the task.

GUIDE PAPER 6

41

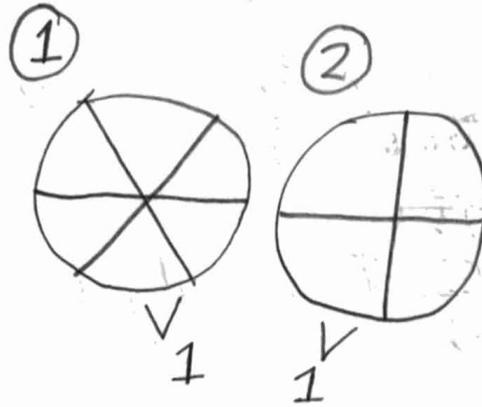
Mark and his friends order two pizzas of the same size.

- The first pizza is cut into 6 slices of equal size.
- The second pizza is cut into 4 slices of equal size.

Each person plans to take 2 slices of pizza. Mark concludes that he would get more pizza by taking 1 slice from each pizza, instead of 2 slices from the first pizza. Explain why Mark is correct. Be sure to include a number comparison using $>$ or $<$ in your explanation.

Answer

He will get more pizza because the second pizza has bigger slices. 1 from each pizza $>$ 2 from one pizza



Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The explanation is correct; however, it does not include a number comparison using a greater than or less than symbol. The response correctly addresses only some elements of the task.

GUIDE PAPER 7

41

Mark and his friends order two pizzas of the same size.

- The first pizza is cut into 6 slices of equal size.
- The second pizza is cut into 4 slices of equal size.

Each person plans to take 2 slices of pizza. Mark concludes that he would get more pizza by taking 1 slice from each pizza, instead of 2 slices from the first pizza. Explain why Mark is correct. Be sure to include a number comparison using $>$ or $<$ in your explanation.

Answer

Mark is correct because one pizza has 6 slices and the other has 4 slices. $6 > 4$

DO NOT

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 explanation is irrelevant.

Mark and his friends order two pizzas of the same size.

- The first pizza is cut into 6 slices of equal size.
- The second pizza is cut into 4 slices of equal size.

Each person plans to take 2 slices of pizza. Mark concludes that he would get more pizza by taking 1 slice from each pizza, instead of 2 slices from the first pizza. Explain why Mark is correct. Be sure to include a number comparison using $>$ or $<$ in your explanation.

Answer

$$\frac{5}{12} > \frac{10}{12}$$

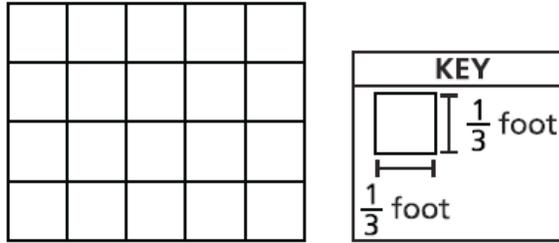
Mark is right because it would really depend on how many friends are there with him.

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 number comparison is incorrect and the explanation is irrelevant.

A section of a rectangular floor is covered with square floor tiles, as shown below.

Each square tile has a side length of $\frac{1}{3}$ foot.



What is the area, in square feet, of the section of the rectangular floor that is covered with floor tiles?

Show your work.

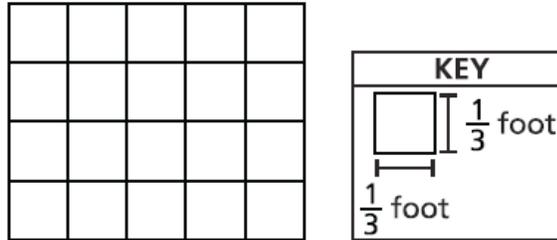
Answer _____ square feet

EXEMPLARY RESPONSE

42

A section of a rectangular floor is covered with square floor tiles, as shown below.

Each square tile has a side length of $\frac{1}{3}$ foot.



What is the area, in square feet, of the section of the rectangular floor that is covered with floor tiles?

Show your work.

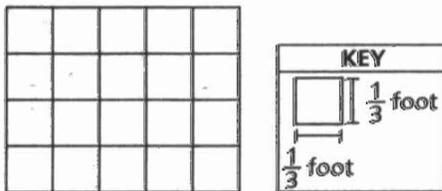
Area covered with floor tiles:

$$(4 \times \frac{1}{3}) \times (5 \times \frac{1}{3}) = \frac{4}{3} \times \frac{5}{3} = \frac{20}{9} = 2 \frac{2}{9} \text{ square feet}$$

Or other valid process

Answer _____ square feet

A section of a rectangular floor is covered with square floor tiles, as shown below. Each square tile has a side length of $\frac{1}{3}$ foot.



What is the area, in square feet, of the section of the rectangular floor that is covered with floor tiles?

Show your work.

$$\left(\frac{1}{3} \times 5\right) \times \left(\frac{1}{3} \times 4\right)$$

$$\frac{5}{3} \times \frac{4}{3} = \frac{20}{9} = 2\frac{2}{9}$$

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

$$(1 \times 1) + \left(\frac{2}{3} \times 1\right) + \left(1 \times \frac{1}{3}\right) + \left(\frac{2}{3} \times \frac{1}{3}\right)$$

$$1 + \frac{2}{3} + \frac{1}{3} + \frac{2}{9} = 2\frac{2}{9}$$

Answer $2\frac{2}{9}$ square feet

Score Point 2 (out of 2 points)

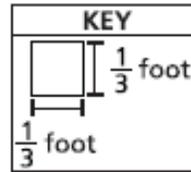
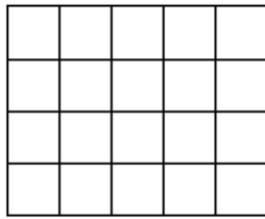
This response demonstrates a thorough understanding of the mathematical concepts in the task. The two dimensions are correctly calculated and multiplied to determine the area of the rectangular floor. Two correct procedures are shown to calculate the area. The response is complete and correct.

GUIDE PAPER 2

42

A section of a rectangular floor is covered with square floor tiles, as shown below.

Each square tile has a side length of $\frac{1}{3}$ foot.



What is the area, in square feet, of the section of the rectangular floor that is covered with floor tiles?

Show your work.

$$\frac{5}{3} \times \frac{4}{3}$$

Answer $\frac{20}{9}$ square feet

Score Point 2 (out of 2 points)

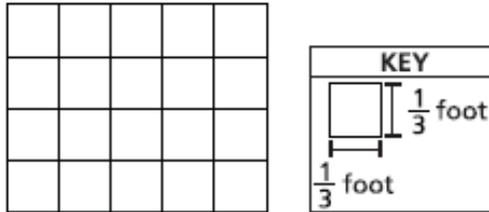
This response demonstrates a thorough understanding of the mathematical concepts in the task. The two dimensions are correctly calculated and multiplied to determine the area of the rectangular floor.

GUIDE PAPER 3

42

A section of a rectangular floor is covered with square floor tiles, as shown below.

Each square tile has a side length of $\frac{1}{3}$ foot.



What is the area, in square feet, of the section of the rectangular floor that is covered with floor tiles?

Show your work.

$$\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$$

$$4 \times 5 = 20$$

$$\frac{1}{9} \times 20 = \frac{20}{9} = 2 \frac{2}{9}$$

Answer

2 2/9

square feet

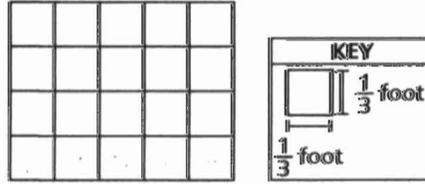
Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The area of one tile is correctly calculated and multiplied by the total number of tiles to determine the solution. The response is complete and correct.

GUIDE PAPER 4

42

A section of a rectangular floor is covered with square floor tiles, as shown below. Each square tile has a side length of $\frac{1}{3}$ foot.



What is the area, in square feet, of the section of the rectangular floor that is covered with floor tiles?

Show your work.

$$\frac{20}{9} = 2\frac{2}{9} \quad 4 \times 5 = 20$$
$$\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$$

Answer $2\frac{2}{9}$ square feet

Score Point 1 (out of 2 points)

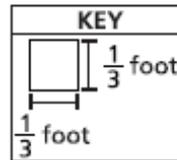
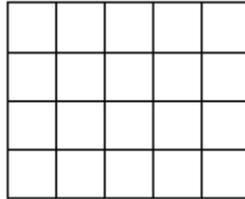
This response demonstrates only a partial understanding of the mathematical concepts in the task. The area of one tile is correctly calculated and multiplied by the total number of tiles to determine the solution; however, the result is incorrectly simplified. The response contains an incorrect solution but applies a mathematically appropriate process.

GUIDE PAPER 5

42

A section of a rectangular floor is covered with square floor tiles, as shown below.

Each square tile has a side length of $\frac{1}{3}$ foot.



What is the area, in square feet, of the section of the rectangular floor that is covered with floor tiles?

Show your work.

$$4 \times 5 = 20 \frac{20}{3} = 6\frac{2}{3}$$

Answer

$$6\frac{2}{3}$$

square feet

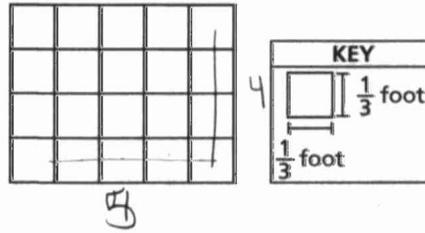
Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The work shows a partial understanding of how to calculate the area. A conceptual error is made when the total number of tiles is multiplied by $\frac{1}{3}$ rather than $\frac{1}{9}$. The response correctly addresses only some elements of the task.

GUIDE PAPER 6

42

A section of a rectangular floor is covered with square floor tiles, as shown below. Each square tile has a side length of $\frac{1}{3}$ foot.



What is the area, in square feet, of the section of the rectangular floor that is covered with floor tiles?

Show your work.

Handwritten work:

$$5 \times 4 = 20$$

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

$$\square = \frac{2}{3}$$

$$20 \times \frac{2}{3} =$$

$$\frac{20 \times 2}{1 \times 3} = \frac{40}{3} = 13\frac{1}{3}$$

$$\frac{13}{3}$$

Answer 13 $\frac{1}{3}$ square feet

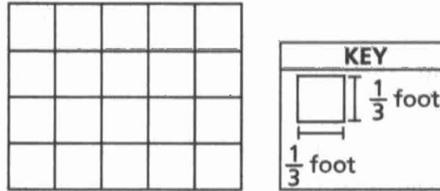
Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The work shows a partial understanding of how to calculate the area. The area of one tile is incorrectly determined. The result is appropriately multiplied by the number of tiles. The response correctly addresses only some elements of the task.

GUIDE PAPER 7

42

A section of a rectangular floor is covered with square floor tiles, as shown below. Each square tile has a side length of $\frac{1}{3}$ foot.



What is the area, in square feet, of the section of the rectangular floor that is covered with floor tiles?

Show your work.

$2\frac{2}{9}$

$$\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$$

$$\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$$

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

$$\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$$

$$\frac{1}{3} \times \frac{1}{3} = \frac{1}{9}$$

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

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

$$2\frac{2}{9}$$

Answer $2\frac{2}{9}$ square feet

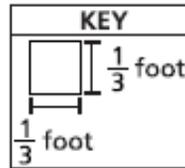
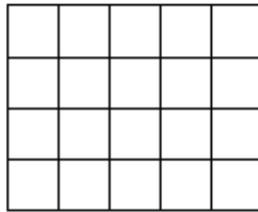
Score Point 0 (out of 2 points)

Although the response contains a correct solution, it was obtained using an obviously incorrect procedure. Holistically the work is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task.

42

A section of a rectangular floor is covered with square floor tiles, as shown below.

Each square tile has a side length of $\frac{1}{3}$ foot.



What is the area, in square feet, of the section of the rectangular floor that is covered with floor tiles?

Show your work.

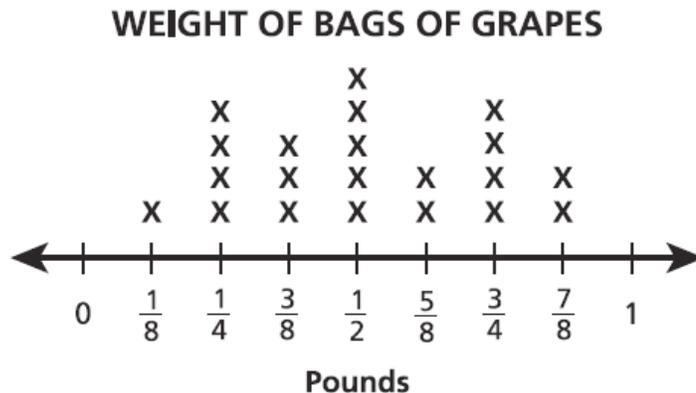
$$\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$$

Answer $\frac{2}{3}$ square 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. An incorrect procedure is used to determine the area.

The line plot shows the number of bags of grapes, grouped by weight, to the nearest $\frac{1}{8}$ pound.



How many bags of grapes had a weight of $\frac{3}{8}$ pound or less?

Answer _____ bags

What was the total weight of the grapes in the bags that had a weight of $\frac{3}{8}$ pound or less?

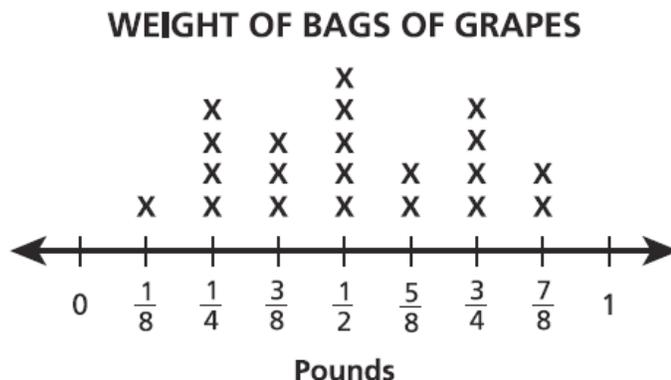
Show your work.

Answer _____ pound(s)

EXEMPLARY RESPONSE

43

The line plot shows the number of bags of grapes, grouped by weight, to the nearest $\frac{1}{8}$ pound.



How many bags of grapes had a weight of $\frac{3}{8}$ pound or less?

Answer _____ bags

What was the total weight of the grapes in the bags that had a weight of $\frac{3}{8}$ pound or less?

Show your work.

8 bags

Total weight:

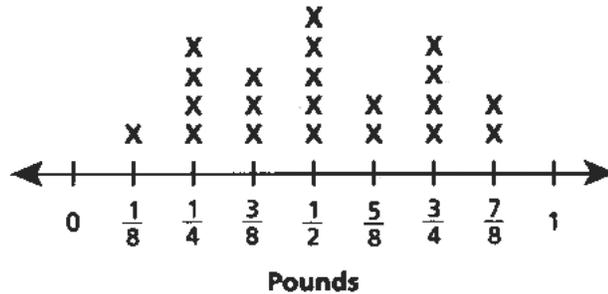
$$(1 \times \frac{1}{8}) + (4 \times \frac{1}{4}) + (3 \times \frac{3}{8}) = \frac{1}{8} + 1 + \frac{9}{8} = \frac{10}{8} + 1 = 1 \frac{2}{8} + 1 = 2 \frac{2}{8} = 2 \frac{1}{4} \text{ pounds}$$

Or other valid process

Answer _____ pound(s)

The line plot shows the number of bags of grapes, grouped by weight, to the nearest $\frac{1}{8}$ pound.

WEIGHT OF BAGS OF GRAPES



How many bags of grapes had a weight of $\frac{3}{8}$ pound or less?

Answer 8 bags

What was the total weight of the grapes in the bags that had a weight of $\frac{3}{8}$ pound or less?

Show your work.

$$\begin{array}{r}
 \frac{3}{8} \\
 + \frac{3}{8} \\
 + \frac{3}{8} \\
 \hline
 \frac{9}{8} = 1\frac{1}{8}
 \end{array}
 \quad
 \begin{array}{l}
 (\frac{3}{8} \times 3) + (\frac{1}{4} \times 4) + (\frac{1}{8} \times 1) \\
 \frac{1}{8} + 1 + \frac{1}{8}
 \end{array}
 \quad
 \begin{array}{r}
 \frac{1}{8} \\
 + \frac{1}{8} \\
 \hline
 \frac{2}{8} \\
 + 1 \\
 \hline
 2\frac{2}{8} = 2\frac{1}{4}
 \end{array}
 \quad
 \begin{array}{r}
 \frac{1}{4} \\
 + \frac{1}{4} \\
 + \frac{1}{4} \\
 \hline
 \frac{4}{4} = 1
 \end{array}$$

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

Score Point 2 (out of 2 points)

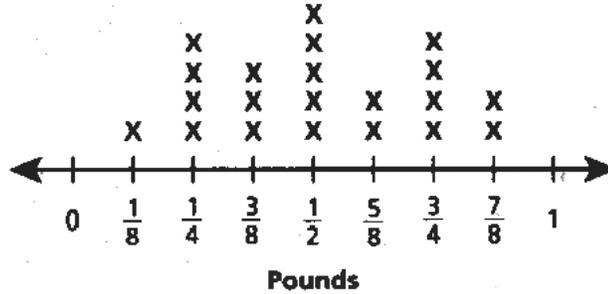
This response demonstrates a thorough understanding of the mathematical concepts in the task. The answer for the number of bags is correct and fractions are correctly multiplied and added to determine the solution. The response is complete and correct.

GUIDE PAPER 2

43

The line plot shows the number of bags of grapes, grouped by weight, to the nearest $\frac{1}{8}$ pound.

WEIGHT OF BAGS OF GRAPES



How many bags of grapes had a weight of $\frac{3}{8}$ pound or less?

Answer. 8 bags

What was the total weight of the grapes in the bags that had a weight of $\frac{3}{8}$ pound or less?

Show your work.

$$\frac{3}{8} \times \frac{3}{1} = \frac{9}{8} = 1\frac{1}{8}$$

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

$$1\frac{9}{8} \times \frac{2}{1} = \frac{18}{8} = 2\frac{1}{8}$$

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

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

$$\begin{array}{r} 1 \\ + \frac{1}{8} \\ \hline 1\frac{1}{8} \end{array}$$

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

Score Point 2 (out of 2 points)

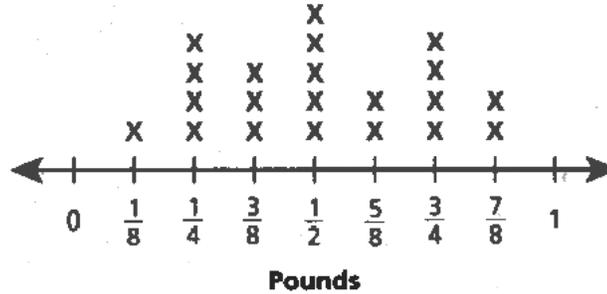
This response demonstrates a thorough understanding of the mathematical concepts in the task. The answer for the number of bags is correct and fractions are correctly multiplied and added to determine the solution. The response is complete and correct.

GUIDE PAPER 3

43

The line plot shows the number of bags of grapes, grouped by weight, to the nearest $\frac{1}{8}$ pound.

WEIGHT OF BAGS OF GRAPES



How many bags of grapes had a weight of $\frac{3}{8}$ pound or less?

Answer 8 bags

What was the total weight of the grapes in the bags that had a weight of $\frac{3}{8}$ pound or less?

Show your work.

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

Answer $\frac{18}{8}$ pound(s)

Score Point 2 (out of 2 points)

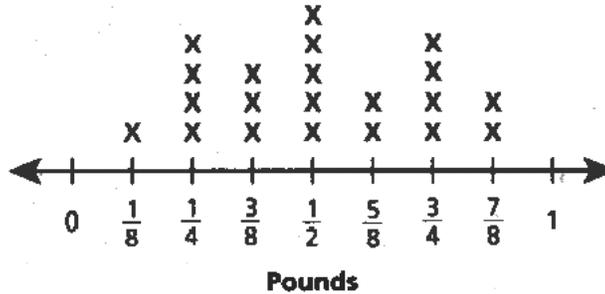
This response demonstrates a thorough understanding of the mathematical concepts in the task. The answer for the number of bags is correct and fractions are correctly added to determine the solution. The response is complete and correct.

GUIDE PAPER 4

43

The line plot shows the number of bags of grapes, grouped by weight, to the nearest $\frac{1}{8}$ pound.

WEIGHT OF BAGS OF GRAPES



How many bags of grapes had a weight of $\frac{3}{8}$ pound or less?

Answer 8 bags

What was the total weight of the grapes in the bags that had a weight of $\frac{3}{8}$ pound or less?

Show your work.

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

$$2\frac{3}{8} + \frac{1}{8} = 2\frac{4}{8}$$

$$\frac{3}{8} + \frac{3}{8} + \frac{3}{8} = \frac{9}{8} = 1\frac{1}{8}$$

Answer $2\frac{3}{8}$ pound(s)

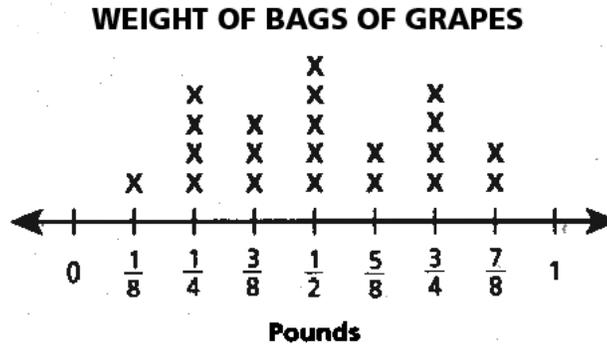
Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The answer for the number of bags is correct. The weight of the $\frac{1}{8}$ -pound bag is added twice, resulting in an incorrect solution. The response contains an incorrect solution but applies a mathematically appropriate process.

GUIDE PAPER 5

43

The line plot shows the number of bags of grapes, grouped by weight, to the nearest $\frac{1}{8}$ pound.



How many bags of grapes had a weight of $\frac{3}{8}$ pound or less?

Answer 8 bags

What was the total weight of the grapes in the bags that had a weight of $\frac{3}{8}$ pound or less?

Show your work.

$$\begin{array}{r} 9 \\ + 8 \\ \hline 17 \\ \frac{17}{8} = 1 + 1 = 2 \end{array}$$

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

$$\frac{3}{8} \times \frac{3}{1} = \frac{9}{8}$$

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

Answer 2 pound(s)

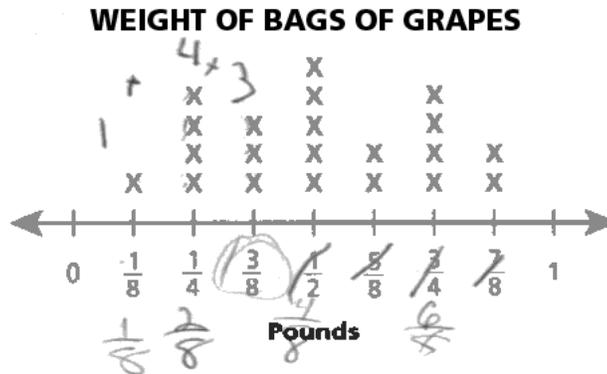
Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The answer for the number of bags is correct. A correct procedure is used to determine the total weight of 8 bags; however, a calculation error results in an incorrect solution. The response contains an incorrect solution but applies a mathematically appropriate process.

GUIDE PAPER 6

43

The line plot shows the number of bags of grapes, grouped by weight, to the nearest $\frac{1}{8}$ pound.



How many bags of grapes had a weight of $\frac{3}{8}$ pound or less?

Answer. 8 bags

What was the total weight of the grapes in the bags that had a weight of $\frac{3}{8}$ pound or less?

Show your work.

①

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

② $\frac{6}{8} \div 2 = \frac{3}{4}$

Answer. $\frac{3}{4}$ pound(s)

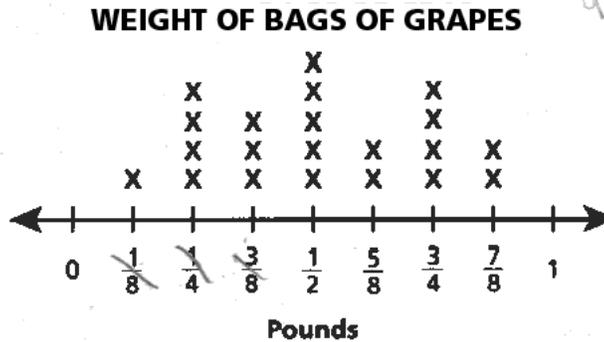
Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The answer for the number of bags is correct. The weight of three bags is calculated and provided as the solution. The response correctly addresses only some elements of the task.

GUIDE PAPER 7

43

The line plot shows the number of bags of grapes, grouped by weight, to the nearest $\frac{1}{8}$ pound.



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

How many bags of grapes had a weight of $\frac{3}{8}$ pound or less?

Answer 3 bags

What was the total weight of the grapes in the bags that had a weight of $\frac{3}{8}$ pound or less?

Show your work.

$\frac{1 \times 1}{8 \times 8}$ $\frac{3 \times 3}{8 \times 8}$ $\frac{3}{8} + \frac{1}{8} + \frac{3}{8} = \frac{6}{8}$
 $\frac{1 \times 2}{4 \times 2} = 8$
 $\frac{6 \div 2 = 3}{8 \div 2 = 4}$

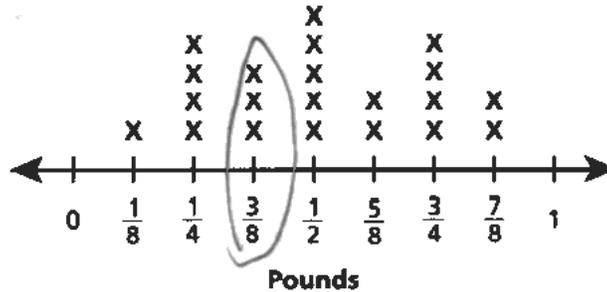
Answer $\frac{3}{4}$ pound(s)

Score Point 0 (out of 2 points)

Although the response correctly calculates the weight of three bags, holistically this is not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.

The line plot shows the number of bags of grapes, grouped by weight, to the nearest $\frac{1}{8}$ pound.

WEIGHT OF BAGS OF GRAPES



How many bags of grapes had a weight of $\frac{3}{8}$ pound or less?

Answer 3 bags

What was the total weight of the grapes in the bags that had a weight of $\frac{3}{8}$ pound or less?

Show your work.

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

Answer ~~3~~ pound(s)

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 answer for the number of bags is incorrect and the work is irrelevant.

At the Middleton School festival, a tent covers a rectangular space $30\frac{1}{2}$ yards long and $9\frac{1}{3}$ yards wide. What is the area, in square yards, covered by the tent?

Show your work.

Answer _____ square yards

EXEMPLARY RESPONSE

44

At the Middleton School festival, a tent covers a rectangular space $30\frac{1}{2}$ yards long and $9\frac{1}{3}$ yards wide. What is the area, in square yards, covered by the tent?

Show your work.

Area covered by the tent:

$$30\frac{1}{2} \times 9\frac{1}{3} = 6\frac{1}{2} \times 28\frac{2}{3} = \frac{1708}{6} = \frac{854}{3} = 284\frac{2}{3} \text{ square yards}$$

Or other valid process

Answer _____ square yards

At the Middleton School festival, a tent covers a rectangular space $30\frac{1}{2}$ yards long and $9\frac{1}{3}$ yards wide. What is the area, in square yards, covered by the tent?

Show your work.

$$30\frac{1}{2} \times 9\frac{1}{3} = \frac{61}{2} \times \frac{28}{3} = \frac{1708}{6} = 284\frac{2}{3}$$

$$\begin{array}{r} 28 \\ \times 61 \\ \hline 128 \\ + 1680 \\ \hline 1708 \end{array}$$

$$\begin{array}{r} 61 \\ 28 \overline{)1708} \\ \underline{-168} \\ 28 \\ \underline{-28} \\ 0 \end{array}$$

$$\begin{array}{r} 284 \text{ R}4 \\ 6 \overline{)1708} \\ \underline{-12} \\ 50 \\ \underline{-48} \\ 28 \\ \underline{-24} \\ 4 \end{array}$$

$$\begin{array}{r} 4 \\ 28 \\ \times 6 \\ \hline 168 \end{array}$$

Answer $284\frac{2}{3}$ square yards

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The area is correctly determined using mathematically sound procedures. The response is complete and correct.

GUIDE PAPER 2

44

At the Middleton School festival, a tent covers a rectangular space $30\frac{1}{2}$ yards long and $9\frac{1}{3}$ yards wide. What is the area, in square yards, covered by the tent?

Show your work.

The student has drawn a rectangle representing the tent. To the right of the rectangle, the length is labeled as $30\frac{1}{2}$. To the left of the rectangle, the width is labeled as $9\frac{1}{3}$. Next to the width label, the student has written the equation $\frac{28}{3} \times \frac{61}{2} = \frac{1,708}{6}$. To the right of the rectangle, there is a vertical multiplication problem:
$$\begin{array}{r} 61 \\ \times 28 \\ \hline 488 \\ + 1220 \\ \hline 1,708 \end{array}$$
 Below the rectangle, the student has written the final answer:
$$\frac{1,708}{6}$$
 square yards. The word "Answer" is written to the left of this final expression.

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The area is correctly determined using mathematically sound procedures. The response is complete and correct.

GUIDE PAPER 3

44

At the Middleton School festival, a tent covers a rectangular space $30\frac{1}{2}$ yards long and $9\frac{1}{3}$ yards wide. What is the area, in square yards, covered by the tent?

Show your work.

$$\begin{array}{r} 30 \times 9 = 270 \\ \frac{1}{3} \times 30 = 10 \\ \frac{1}{2} \times 9 = 4\frac{1}{2} \\ \frac{1}{2} \times \frac{1}{3} = \frac{1}{6} \\ \hline 280 \\ \quad 4\frac{2}{3} \\ \hline 284\frac{2}{3} \text{ sq. yds. ans.} \end{array}$$

Answer $284\frac{2}{3}$ square yards

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The distributive property is correctly used to determine the area. The response is complete and correct.

GUIDE PAPER 4

44

At the Middleton School festival, a tent covers a rectangular space $30\frac{1}{2}$ yards long and $9\frac{1}{3}$ yards wide. What is the area, in square yards, covered by the tent?

Show your work.

~~$14\frac{28}{3} \times \frac{8}{1} = \frac{14}{3}$~~ ~~$\frac{61}{18} \times \frac{18}{1} = \frac{61}{1}$~~

~~$47 + 51$~~ ~~$65\frac{2}{3}$~~

$$\begin{array}{r} 284.\bar{6} \\ 6 \overline{)1708} \\ \underline{12} \\ 50 \\ \underline{48} \\ 28 \\ \underline{24} \\ 40 \\ \underline{36} \\ 4 \end{array}$$

$$\frac{61}{2} \times \frac{28}{3} = \frac{1708}{6}$$

$$\begin{array}{r} 61 \\ \times 28 \\ \hline 488 \\ 122 \\ \hline 1708 \end{array}$$

Answer $284\frac{1}{3}$ square yards

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. Mixed numbers are correctly converted to improper fractions and multiplied to determine the area; however, the decimal answer is incorrectly converted to a mixed number. The response contains an incorrect solution but applies a mathematically appropriate process.

GUIDE PAPER 5

44

At the Middleton School festival, a tent covers a rectangular space $30\frac{1}{2}$ yards long and $9\frac{1}{3}$ yards wide. What is the area, in square yards, covered by the tent?

Show your work.

$$\begin{array}{r} 30.5 \\ \times 9.3\overline{6} \\ \hline 1915 \\ 27450 \\ \hline 28365 \end{array}$$
$$30\frac{1}{2} \rightarrow 30.5$$
$$9\frac{1}{3} \rightarrow 9.3$$
$$9\frac{1}{3} \times 5\frac{10}{30}$$

Answer 283.65 square yards

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. A rounding error is made when converting mixed numbers to decimals ($9\frac{1}{3} \rightarrow 9.3$). The multiplication is carried out correctly to determine the area. The response correctly addresses only some elements of the task.

GUIDE PAPER 6

44

At the Middleton School festival, a tent covers a rectangular space $30\frac{1}{2}$ yards long and $9\frac{1}{3}$ yards wide. What is the area, in square yards, covered by the tent?

Show your work.

OMSB →

$$\frac{61}{2} \times \frac{28}{3} = \frac{1,688}{6}$$

$$\begin{array}{r} 61 \\ 28 \\ \hline 468 \\ 1220 \\ \hline 1688 \end{array}$$

$$\begin{array}{r} 1283 \\ \hline 6 \overline{) 1.688} \\ \underline{12} \\ 048 \\ \underline{46} \\ 028 \\ \underline{18} \\ 10 \end{array}$$

$$\begin{array}{r} 61 \\ \hline 1 \overline{) 1.22} \\ \underline{64} \\ 608 \\ \underline{88} \\ 88 \end{array}$$

Answer $283\frac{10}{10}$ square yards

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. Mixed numbers are correctly converted to improper fractions; however, a multiplication error is made when determining the area. The answer is incorrectly converted to a mixed number and provided as the solution. The response contains an incorrect solution but applies a mathematically appropriate process.

GUIDE PAPER 7

44

At the Middleton School festival, a tent covers a rectangular space $30\frac{1}{2}$ yards long and $9\frac{1}{3}$ yards wide. What is the area, in square yards, covered by the tent?

Show your work.

$$\begin{array}{r} 30 \\ \times 9 \\ \hline 270 \end{array}$$
$$\begin{array}{r} \frac{1}{3} \\ \times \frac{1}{2} \\ \hline \frac{1}{5} \end{array}$$
$$\begin{array}{r} 13 \\ 270 \\ \times 5 \\ \hline 050 \\ 030 \\ 400 \\ \hline 1480 \\ + 270 \\ \hline 750 \end{array}$$

$$\begin{array}{r} 61 \\ 750 \\ - 270 \\ \hline 480 \\ - 270 \\ \hline 210 \end{array}$$

Answer 750 square yards

Score Point 0 (out of 2 points)

Although the response contains some correct elements, holistically the work is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Incorrect multiplications show no understanding.

At the Middleton School festival, a tent covers a rectangular space $30\frac{1}{2}$ yards long and $9\frac{1}{3}$ yards wide. What is the area, in square yards, covered by the tent?

Show your work.

Handwritten work showing several calculations:

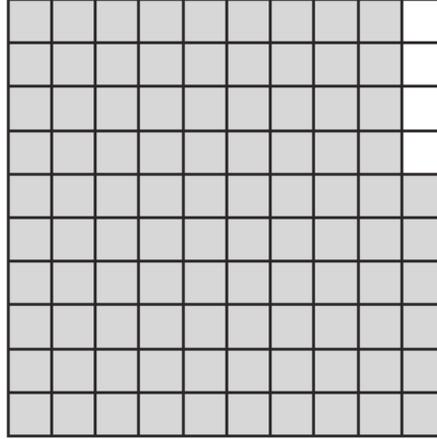
- $9 + 9 = 18$
- $30 + 30 = 60$
- $60 + 1 = 61$
- $4 + 18 = 22$
- $22 \times 61 = 1342$
- $1342 + 18 = 1360$
- $1360 + 248 = 1608$
- $1608 + 2498 = 4106$
- $4106 + \frac{2}{3} = 4106\frac{2}{3}$
- $1 + \frac{2}{3} = 1\frac{2}{3}$
- $1\frac{2}{3} \times 18 = 29\frac{2}{3}$
- $29\frac{2}{3} + 60 = 89\frac{2}{3}$

Answer $2498\frac{2}{3}$ square yards

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. An incorrect procedure is used to determine the area. Opposite sides are added and then incorrectly multiplied.

Kia purchased books at a book fair. The shaded part of the decimal grid below represents the part of \$1.00 that she has remaining after purchasing her books.



Kia decides to give **all** of the money she has remaining to her 3 friends so they can buy some bookmarks which cost \$0.10 each. If Kia gives each of her friends the same amount of money, what is the greatest number of bookmarks that each of her friends can buy?

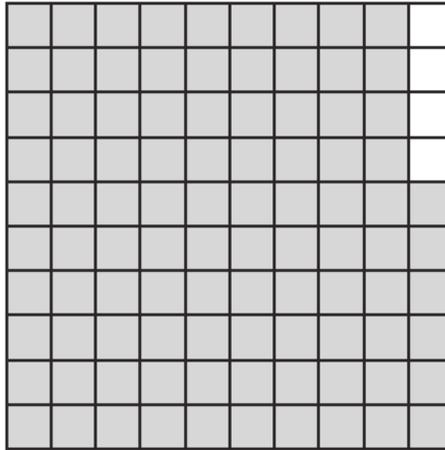
Show your work.

Answer _____ bookmarks per friend

EXEMPLARY RESPONSE

45

Kia purchased books at a book fair. The shaded part of the decimal grid below represents the part of \$1.00 that she has remaining after purchasing her books.



Kia decides to give **all** of the money she has remaining to her 3 friends so they can buy some bookmarks which cost \$0.10 each. If Kia gives each of her friends the same amount of money, what is the greatest number of bookmarks that each of her friends can buy?

Show your work.

$$100 - 4 = 96 \text{ cents remaining to give to friends}$$

$$96 \div 3 = 32 \text{ cents each friend gets}$$

$$32 \div 10 = 3 \text{ R}2$$

Each friend can buy 3 bookmarks.

OR $96 \div 10 = 9 \text{ R}6$, 9 total bookmarks

$$9 \div 3 = 3 \text{ bookmarks}$$

Or other valid process

Answer _____ bookmarks per friend

Kia purchased books at a book fair. The shaded part of the decimal grid below represents the part of \$1.00 that she has remaining after purchasing her books.



Kia decides to give all of the money she has remaining to her 3 friends so they can buy some bookmarks which cost \$0.10 each. If Kia gives each of her friends the same amount of money, what is the greatest number of bookmarks that each of her friends can buy?

Show your work.

$$\begin{array}{r} 32 \\ 3 \overline{)96} \\ \underline{-96} \\ 0 \end{array}$$

3 friends = 96¢
1 friend = 32¢

$$\begin{array}{r} 032 \\ 10 \overline{)32} \\ \underline{-030} \\ 2 \end{array}$$

Answer 3 bookmarks per friend

Score Point 3 (out of 3 points)

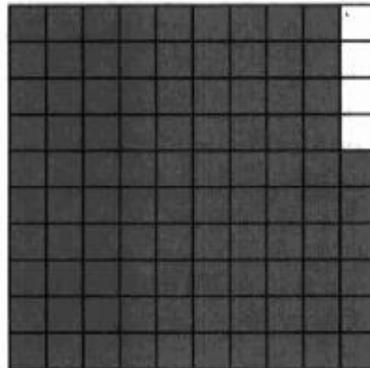
This response demonstrates a thorough understanding of the mathematical concepts in the task. The number of bookmarks each friend can buy is correctly determined using mathematically sound procedures. The response is complete and correct.

GUIDE PAPER 2

45

Kia purchased books at a book fair. The shaded part of the decimal grid below represents the part of \$1.00 that she has remaining after purchasing her books.

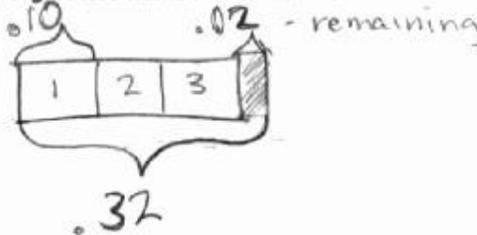
$.96$

Kia decides to give all of the money she has remaining to her 3 friends so they can buy some bookmarks which cost \$0.10 each. If Kia gives each of her friends the same amount of money, what is the greatest number of bookmarks that each of her friends can buy?

Show your work.

$$\begin{array}{r} 3 \overline{) .32} \\ \underline{.90} \\ .02 \\ \underline{.06} \\ .06 \\ \underline{.06} \\ 0 \end{array}$$



Answer 3 bookmarks per friend

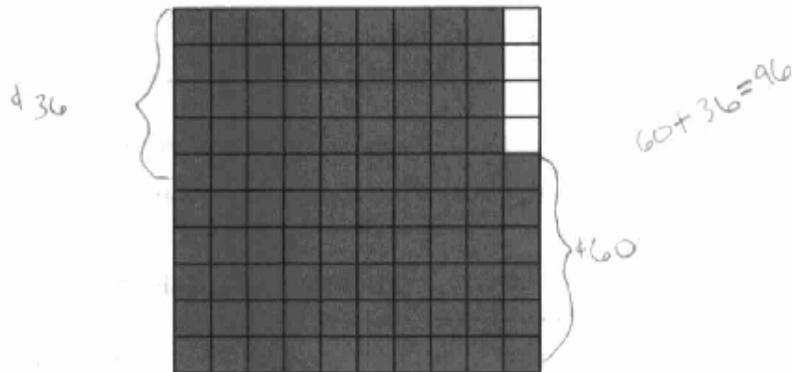
Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The number of bookmarks each friend can buy is correctly determined using mathematically sound procedures. The response is complete and correct.

GUIDE PAPER 3

45

Kia purchased books at a book fair. The shaded part of the decimal grid below represents the part of \$1.00 that she has remaining after purchasing her books.



Kia decides to give all of the money she has remaining to her 3 friends so they can buy some bookmarks which cost \$0.10 each. If Kia gives each of her friends the same amount of money, what is the greatest number of bookmarks that each of her friends can buy?

Show your work.

$$\begin{array}{r} 96 \\ 10 \overline{) 96} \\ \underline{-90} \\ 6 \end{array}$$

$$96 \div 3 = 32$$

Answer 3 bookmarks per friend

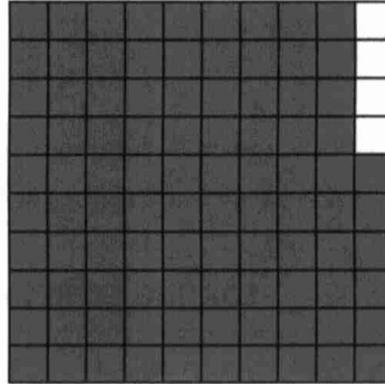
Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The number of bookmarks each friend can buy is correctly determined using mathematically sound procedures. The response is complete and correct.

GUIDE PAPER 4

45

Kia purchased books at a book fair. The shaded part of the decimal grid below represents the part of \$1.00 that she has remaining after purchasing her books.



Kia decides to give all of the money she has remaining to her 3 friends so they can buy some bookmarks which cost \$0.10 each. If Kia gives each of her friends the same amount of money, what is the greatest number of bookmarks that each of her friends can buy?

Show your work.

$$\begin{array}{r} 3R6 \\ 30 \overline{) 96} \end{array}$$

Answer 3 bookmarks per friend

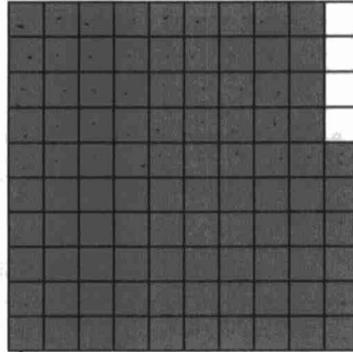
Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The number of bookmarks each friend can buy is correctly calculated; however, the work does not show how 30 is obtained. The response appropriately addresses most but not all aspects of the task using mathematically sound procedures.

GUIDE PAPER 5

45

Kia purchased books at a book fair. The shaded part of the decimal grid below represents the part of \$1.00 that she has remaining after purchasing her books.



Kia decides to give all of the money she has remaining to her 3 friends so they can buy some bookmarks which cost \$0.10 each. If Kia gives each of her friends the same amount of money, what is the greatest number of bookmarks that each of her friends can buy?

Show your work.

$$\begin{array}{r} 32 \\ 3 \overline{) 96} \\ \underline{- 96} \\ 0 \end{array}$$

Answer 3 bookmarks per friend

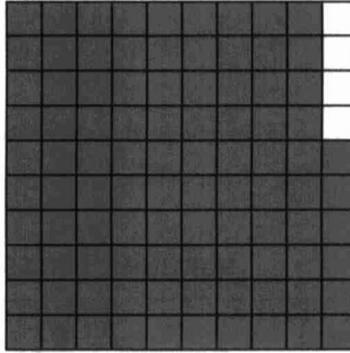
Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The amount of money each friend gets is correctly calculated and a correct solution is provided; however, the work does not show how the solution is obtained from 32. The response appropriately addresses most but not all aspects of the task using mathematically sound procedures.

GUIDE PAPER 6

45

Kia purchased books at a book fair. The shaded part of the decimal grid below represents the part of \$1.00 that she has remaining after purchasing her books.



Kia decides to give all of the money she has remaining to her 3 friends so they can buy some bookmarks which cost \$0.10 each. If Kia gives each of her friends the same amount of money, what is the greatest number of bookmarks that each of her friends can buy?

Show your work.

$$\begin{array}{r} 0.10 \\ \times 100 \\ \hline .40 \\ \hline .60 \end{array}$$

$$\begin{array}{r} 20 \\ 3 \overline{) .60} \\ \underline{60} \\ 00 \end{array}$$

2 bookmarks
2 friend
.20 .20 .20
1 friend 3 friend
2 bookmarks 2 bookmarks

Answer 2 bookmarks per friend

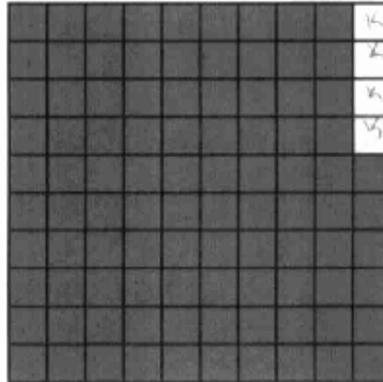
Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The decimal point is misplaced when calculating the amount of money remaining to give to friends. The subtraction is carried out correctly. The result is correctly used to determine the amount of money and the number of bookmarks per friend. The response reflects some minor misunderstanding of the underlying mathematical concepts.

GUIDE PAPER 7

45

Kia purchased books at a book fair. The shaded part of the decimal grid below represents the part of \$1.00 that she has remaining after purchasing her books.



Kia decides to give all of the money she has remaining to her 3 friends so they can buy some bookmarks which cost \$0.10 each. If Kia gives each of her friends the same amount of money, what is the greatest number of bookmarks that each of her friends can buy?

Show your work.

Handwritten work:

$$1.00 = \text{Kia}$$

$$= 1$$

$$3 \overline{) 0.96}$$

$$\underline{- 0.30}$$

$$0.66$$

$$\underline{- 0.30}$$

$$0.36$$

$$\underline{- 0.30}$$

$$0.06$$

$$\underline{- 0.06}$$

$$0$$

0.32

$$10 \overline{) 0.32}$$

$$\underline{- 0.30}$$

$$0.02$$

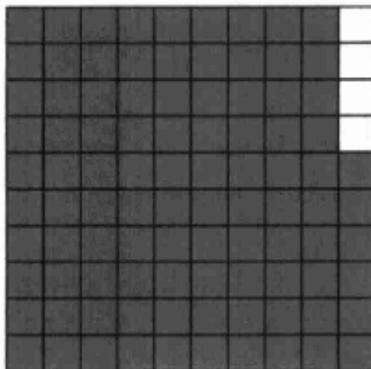
Answer 5 bookmarks per friend

Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts in the task. The amount of money each friend gets is correctly calculated; however, the result is divided by 10 instead of 0.1 and it is not clear how the solution is obtained. The response addresses some elements of the task correctly but reaches an inadequate solution due to reasoning that is faulty and incomplete.

45

Kia purchased books at a book fair. The shaded part of the decimal grid below represents the part of \$1.00 that she has remaining after purchasing her books.



Kia decides to give all of the money she has remaining to her 3 friends so they can buy some bookmarks which cost \$0.10 each. If Kia gives each of her friends the same amount of money, what is the greatest number of bookmarks that each of her friends can buy?

Show your work.

$$\begin{array}{r}
 32 \\
 3 \overline{)96} \\
 \underline{-96} \\
 06 \\
 \underline{-6} \\
 0
 \end{array}$$

Answer 32 bookmarks per friend

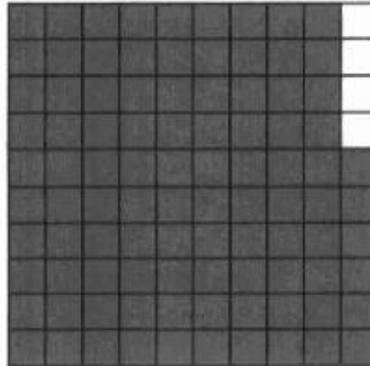
Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts in the task. The amount of money each friend gets is correctly calculated; however, no other work is provided. The response addresses some elements of the task correctly but reaches an inadequate solution due to reasoning that is faulty and incomplete.

GUIDE PAPER 9

45

Kia purchased books at a book fair. The shaded part of the decimal grid below represents the part of \$1.00 that she has remaining after purchasing her books.



Kia decides to give all of the money she has remaining to her 3 friends so they can buy some bookmarks which cost \$0.10 each. If Kia gives each of her friends the same amount of money, what is the greatest number of bookmarks that each of her friends can buy?

Show your work.

$$\begin{array}{r} 33 \\ 3 \overline{) 1.00} \\ \underline{-96} \\ 10 \\ \underline{-9} \\ 1 \end{array}$$

Answer 3 bookmarks per friend

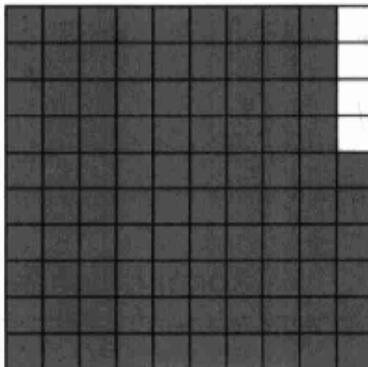
Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts in the task. Although the solution is correct, a conceptual error is made when one dollar instead of 96 cents is used in calculations. The response addresses some elements of the task correctly but reflects a lack of essential understanding of the underlying mathematical concepts.

GUIDE PAPER 10

45

Kia purchased books at a book fair. The shaded part of the decimal grid below represents the part of \$1.00 that she has remaining after purchasing her books.



Kia decides to give all of the money she has remaining to her 3 friends so they can buy some bookmarks which cost \$0.10 each. If Kia gives each of her friends the same amount of money, what is the greatest number of bookmarks that each of her friends can buy?

Show your work.

Handwritten work showing calculations:

Each Friend Gets 80 Each

$$\frac{1.00}{3} = 0.33$$

$$0.33 \times 3 = 1.00$$

$$\frac{16}{8} = 2$$

$$3 \overline{) 96} = 32$$

$$\frac{32}{3} = 10 \frac{2}{3}$$

$$32 = 16$$

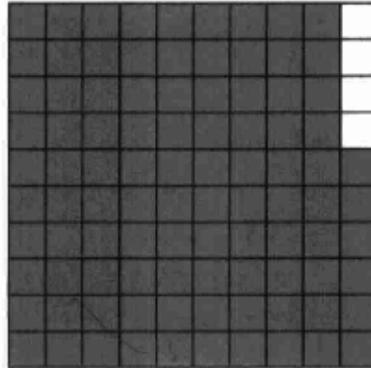
Answer 80 bookmarks per friend

Score Point 0 (out of 3 points)

Although the work contains correct calculations, additional work of multiplying, subtracting, and adding numbers and an incorrect solution show no overall understanding. Holistically this response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task.

45

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Kia decides to give all of the money she has remaining to her 3 friends so they can buy some bookmarks which cost \$0.10 each. If Kia gives each of her friends the same amount of money, what is the greatest number of bookmarks that each of her friends can buy?

Show your work.

$$\begin{array}{r} 4 \cdot 0.25 \\ \hline 1.00 \\ - 0.80 \\ \hline 0.20 \end{array}$$

$$\begin{array}{r} 0.25 \\ \hline 0.10 \\ \hline 0.15 \\ \hline 0.10 \\ \hline 0.05 \end{array}$$

Answer 2 bookmarks per friend

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 the work is irrelevant.

