New York State Testing Program

2023

Mathematics Test

Grade 4

Scoring Leader Materials

Training Set

Note to Scorers

You may notice that some questions in these scoring materials appear with a bracketed credit value showing the respective number of credits. This is due to a style change that was recently field tested; therefore, not all items will have the bracketed credit value. An example of what the bracketed credit value looks like is provided below for your reference.

Example: Stem of the question. [2]

1-Credit Constructed-Response Rubric

1 Credit	A 1-credit response is a **correct answer** to the question which indicates a thorough understanding of mathematical concepts and/or procedures.
0 Credits*	A 0-credit response is incorrect, irrelevant, or incoherent.

* 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).

2-Credit Constructed-Response Holistic Rubric

2 Credits	A 2-credit 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 Credit	A 1-credit 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 Credits*	A 0-credit 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-Credit Constructed-Response Holistic Rubric

3 Credits	A 3-credit 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 Credits	A 2-credit 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 Credit	A 1-credit 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 Credits*	A 0-credit 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).

2023 1-Credit Constructed-Response Mathematics Scoring Policies

1. The student is **not** required to show work for 1-credit constructed-response question, therefore, any work shown will **not** be scored. A clearly identified correct response should still receive full credit.

2. If the student clearly identifies a correct answer but fails to write that answer in the answer space, the student should still receive full credit.

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

4. 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.

5. If the student provides more than one response but does not indicate which response is to be considered the correct response and none have been crossed out, the student shall not receive credit.

6. If the student does not provide the answer in the form as directed in the question, the student will not receive credit.

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

8. When measuring angles with a protractor, there is a +/- 5 degrees deviation allowed of the true measure.

9. 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.

2023 2- and 3-Credit Constructed-Response Mathematics Scoring Policies

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 or provide an explanation, a correct answer with **no** work shown or **no** explanation provided, receives **no** credit.

4. If students are **not** directed to show work, any work shown will **not** be scored. This applies to questions that do **not** ask for any work and questions 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 have been crossed out, the student shall not receive full credit.

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

9. 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.

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

11. When measuring angles with a protractor, there is a +/- 5 degrees deviation allowed of the true measure.

12. 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.

36

Rosie combined $1\frac{3}{4}$ gallons of cranberry juice and $\frac{3}{4}$ gallon of apple juice to make fruit juice. How many gallons of fruit juice did Rosie make with the cranberry juice and apple juice?

Answer _____ gallons

36

Rosie combined $1\frac{3}{4}$ gallons of cranberry juice and $\frac{3}{4}$ gallon of apple juice to make fruit juice. How many gallons of fruit juice did Rosie make with the cranberry juice and apple juice?

$2\frac{1}{2}$ or $2\frac{2}{4}$ or $1\frac{6}{4}$

Answer _____ or equivalent answer _____ gallons

36

Rosie combined $1\frac{3}{4}$ gallons of cranberry juice and $\frac{3}{4}$ gallon of apple juice to make fruit juice. How many gallons of fruit juice did Rosie make with the cranberry juice and apple juice?

Answer $2\frac{2}{4}$ or $2\frac{1}{2}$ gallons gallons

Score Point 1 (out of 1 credit)

A correct answer is provided.

36

Rosie combined $1\frac{3}{4}$ gallons of cranberry juice and $\frac{3}{4}$ gallon of apple juice to make fruit juice. How many gallons of fruit juice did Rosie make with the cranberry juice and apple juice? [1]

Answer ____$2\frac{2}{4}$____ gallons

Score Point 1 (out of 1 credit)

A correct answer is provided.

36

Rosie combined $1\frac{3}{4}$ gallons of cranberry juice and $\frac{3}{4}$ gallon of apple juice to make fruit juice. How many gallons of fruit juice did Rosie make with the cranberry juice and apple juice? [1]

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

Answer ___4$\frac{3}{4}$___ gallons

Score Point 0 (out of 1 credit)

An incorrect answer is provided.

37

What is the number 88,678 rounded to the nearest thousand?

Answer _____

37

What is the number 88,678 rounded to the nearest thousand?

89,000 *or* 89000

Answer *or equivalent answer*

37

What is the number 88,678 rounded to the nearest thousand? [1]

88,678
=
89,000

Answer _88,000_

Score Point 1 (out of 1 credit)

A correct answer is provided.

37

What is the number 88,678 rounded to the nearest thousand?

Answer
| 88,678 --> |
| 89,000 |

Score Point 1 (out of 1 credit)

A correct answer is provided.

37

What is the number 88,678 rounded to the nearest thousand? [1]

↑ 90,000
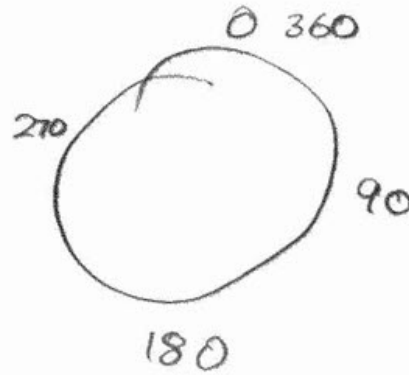
— 88,678

— 85,000

↓ 80,000!
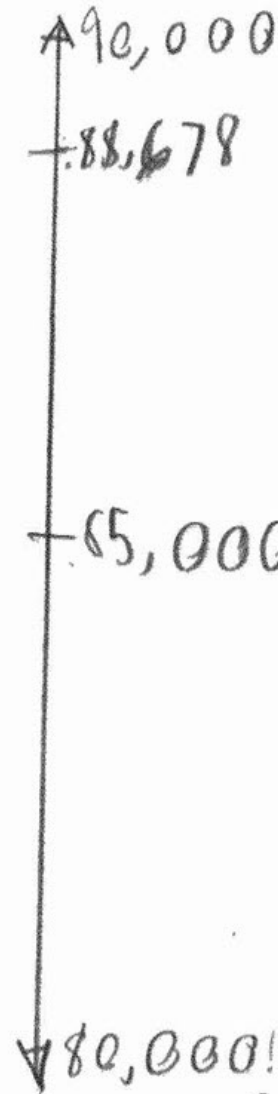
Answer **90,000**

Score Point 0 (out of 1 credit)

An incorrect answer is provided.

38

How many one-degree angles are in a complete circle?

Answer _____ one-degree angles

38

How many one-degree angles are in a complete circle?

360

Answer *or equivalent answer*   one-degree angles

38

How many one-degree angles are in a complete circle?

Answer _____360_____ one-degree angles

Score Point 1 (out of 1 credit)

A correct answer is provided.

38

How many one-degree angles are in a complete circle? [1]

Answer _____360_____ one-degree angles

Score Point 1 (out of 1 credit)

A correct answer is provided.

38

How many one-degree angles are in a complete circle? [1]

340

Answer _____ one-degree angles

Score Point 0 (out of 1 credit)

An incorrect answer is provided.

39

Which quadrilaterals shown below appear to be rectangles? Be sure to include what you know about angles and sides in your answer.
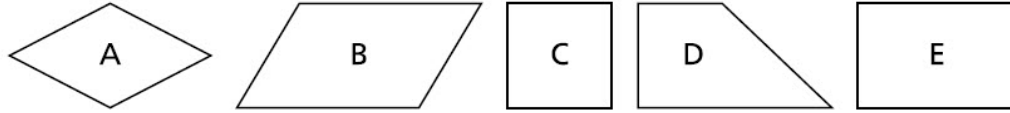
A   B   C   D   E

Explain how you know your answer is correct.

_____

_____

_____

39

Which quadrilaterals shown below appear to be rectangles? Be sure to include what you know about angles and sides in your answer.

A   B   C   D   E
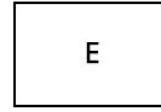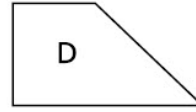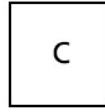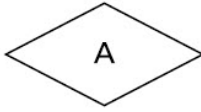
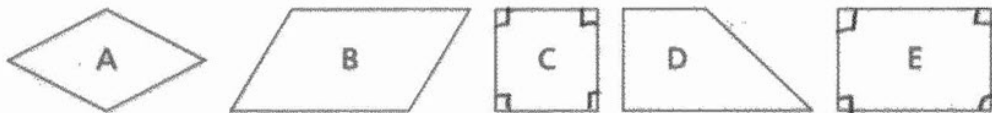*Explain how you know your answer is correct.*

C and E are both rectangles because they have 4 right angles.

or

C and E are both rectangles because they have 4 angles of 90 degrees.

or other valid explanation

39

Which quadrilaterals shown below appear to be rectangles? Be sure to include what you know about angles and sides in your answer. [2]

A   B   C   D   E

Explain how you know your answer is correct.

C,E because C and E have 4 right angles
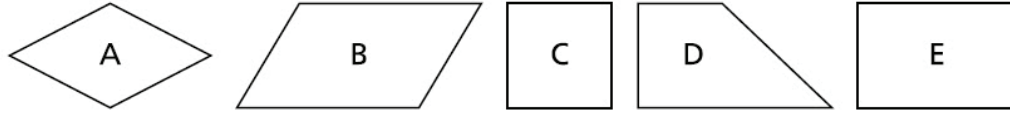The shapes both have 2 pairs of parallel lines.

Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The correct quadrilaterals are chosen, and a valid explanation is provided. This response is complete and correct.

39

Which quadrilaterals shown below appear to be rectangles? Be sure to include what you know about angles and sides in your answer.

Explain how you know your answer is correct.

C,E I know this because rectangles must have 4 sides, 4 right angles, 2 pares of parallel sides, and 2 pares of = sides.
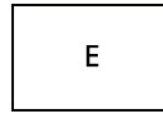

Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The correct quadrilaterals are chosen, and a valid explanation is provided. This response is complete and correct.

GUIDE PAPER 3

39

Which quadrilaterals shown below appear to be rectangles? Be sure to include what you know about angles and sides in your answer.

Explain how you know your answer is correct.

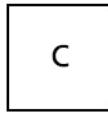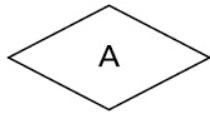C and E because it has four right angles.

Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The correct quadrilaterals are chosen, and a valid explanation is provided. The explanation is sufficient to show a thorough understanding.

39

Which quadrilaterals shown below appear to be rectangles? Be sure to include what you know about angles and sides in your answer.

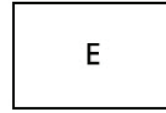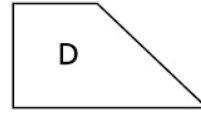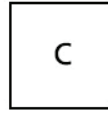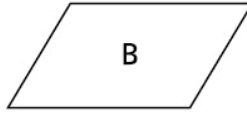*Explain how you know your answer is correct.*

Quadrilateral E is a rectangle. I know this because rectangles have four right angles. Rectangles also have two sets of paralell sides, and two short sides and two long sides. Quadrilateral has all of these things. That is how I know my answer is correct.

Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. One correct quadrilateral is chosen, and a valid explanation is provided for E. This response correctly addresses only some elements of the task.

39

Which quadrilaterals shown below appear to be rectangles? Be sure to include what you know about angles and sides in your answer. [2]

A B C D E

Explain how you know your answer is correct.

A, B, C & E because, A rectangle has 2 pairs of parallel sides, 4 right angles & 2 pairs of equal sides A has a pair of Parallel sides, B has 2 pairs of parallel sides, c has 4 right angles & a pairs of parallel sides, E has 4 right angles 2 pairs of parallel sides and 2 pairs of sides with equal length.
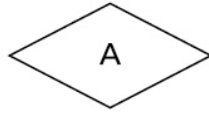
Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. Two correct quadrilaterals and two incorrect quadrilaterals are chosen, and an explanation identifying 4 right angles is provided for C and E. This response correctly addresses only some elements of the task.

39

Which quadrilaterals shown below appear to be rectangles? Be sure to include what you know about angles and sides in your answer. [2]

Explain how you know your answer is correct.

E and C are rectangl
they hav 4 right angles
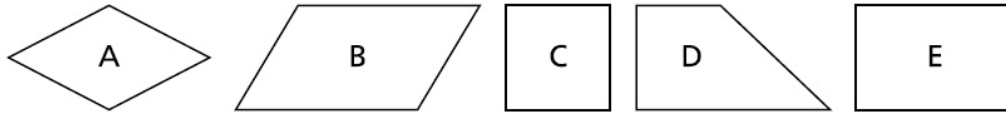and 4 equle sides

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Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. Although the correct quadrilaterals are chosen and right angles are identified, the phrase *"4 equle sides"* is incorrect. This response correctly addresses only some elements of the task.

39

Which quadrilaterals shown below appear to be rectangles? Be sure to include what you know about angles and sides in your answer.

A   B   C   D   E

Explain how you know your answer is correct.

> Quadrilaterals C and E. I know this because E has two sets of parellel sides and C has two sets of parellel sides too.

Score Point 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Although the correct quadrilaterals are chosen, right angles are not addressed. The phrase *"2 sets of parellel sides"* is insufficient because quadrilaterals A and B also have two sets of parallel sides. Holistically, this response shows no overall understanding.

39

Which quadrilaterals shown below appear to be rectangles? Be sure to include what you know about angles and sides in your answer. [2]

A   B   C   D   E

Explain how you know your answer is correct.

I Know my answer is correct because c is a saare.

Score Point 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Although a correct quadrilateral is chosen, right angles are not addressed. Holistically, the explanation is insufficient to show any understanding.

40

A student draws the two rectangles shown below.
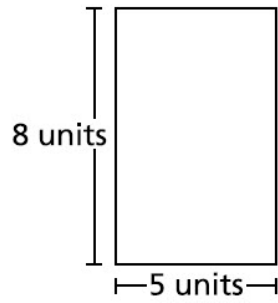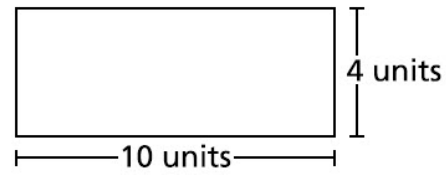
Rectangle A   **Rectangle B**

The student thinks the two rectangles have the same area but different perimeters. Is the student correct? Be sure to include the areas and perimeters of both figures in your answer.

Explain your answer.

_____

_____

_____

EXEMPLARY RESPONSE

40

A student draws the two rectangles shown below.

Rectangle A   **Rectangle B**

The student thinks the two rectangles have the same area but different perimeters. Is the student correct? Be sure to include the areas and perimeters of both figures in your answer.

Explain your answer.

Yes, the student is correct. The area for Rectangle A is $8 \times 5 = 40$ and the area for Rectangle B is $10 \times 4 = 40$. The rectangles have the same area. The perimeter for Rectangle A is $8 + 5 + 8 + 5 = 26$ and the perimeter for Rectangle B is $10 + 4 + 10 + 4 = 28$. The rectangles have different perimeters.

or other valid explanation

40

A student draws the two rectangles shown below.

8 units

4 units

├─5 units─┤

├──10 units──┤

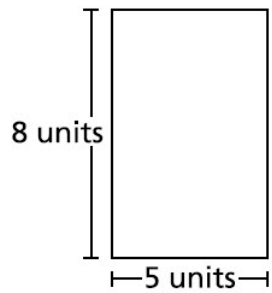**Rectangle A**   **Rectangle B**

The student thinks the two rectangles have the same area but different perimeters.
Is the student correct? Be sure to include the areas and perimeters of both figures
in your answer. [2]

Explain your answer.

_____ yes the student is correct _____

$P_1 = A + B + B + A$

$P_1 = 8 + 5 + 5 + 8$

$P_1 = 2 \times (8 + 5)$

$P_1 = 26$ units

$A_1 = A \times B$

$A_1 = 8 \times 5$

$A_1 = 40$ sq units

$A_1 -$

$P_2 = B + A + A + B$

$P_2 = 10 + 4 + 4 + 10$

$P_2 = 2 \times (10 + 4)$

$P_2 = 28$ units

$A_2 = A \times B$

$A_2 = 4 \times 10$

$A_2 = 40$

compare units

$26 \, \textcircled{\lessgtr} \, 28$

$28 - 26 = 2$

compare Area

$40 \, \textcircled{=} \, 40$

$40 - 40 = 0$

Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures
in the task. The correct claim is chosen, and the areas and perimeters of both rectangles are provided.
This response is complete and correct.

GUIDE PAPER 2

40

A student draws the two rectangles shown below.
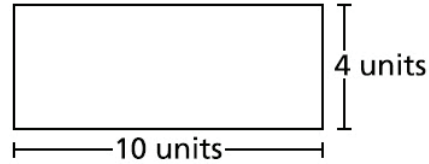
8 units

├─5 units─┤

Rectangle A

4 units

├──────10 units──────┤

Rectangle B

The student thinks the two rectangles have the same area but different perimeters. Is the student correct? Be sure to include the areas and perimeters of both figures in your answer.
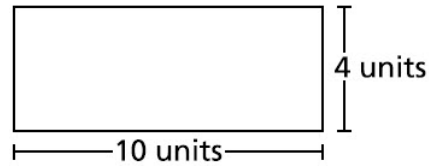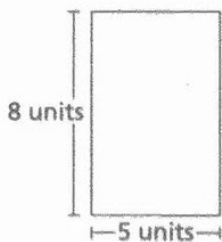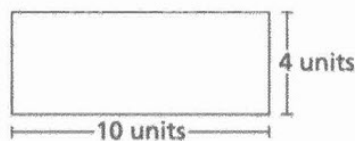
Explain your answer.

He is correct The area of Rectangle A, (8 × 5) is 40 and the area of Rectangle B, (10 × 4) is also 40. The Perimeter of Rectangle A is, (8+5+8+5) 26 and the Perimiter of Rectangle B is
(10+4+10+4) 28.

Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The correct claim is chosen, and the areas and perimeters of both rectangles are provided. The explanation is sufficient to show a thorough understanding.

GUIDE PAPER 3

40

A student draws the two rectangles shown below.
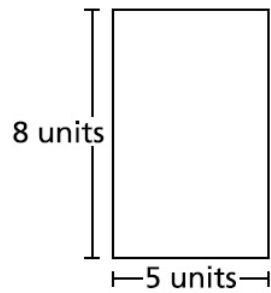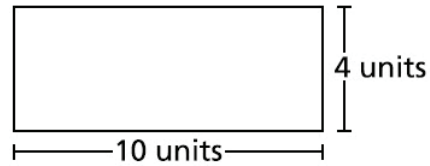
Rectangle A

Rectangle B

The student thinks the two rectangles have the same area but different perimeters. Is the student correct? Be sure to include the areas and perimeters of both figures in your answer.

Explain your answer.

8 × 5=40
10 × 4=40
20+8=28
16+10=26
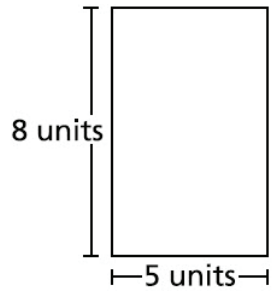He is because both of the areas are 40 and the perimiters are 28 and 26.

Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The correct claim is chosen, and the areas and perimeters of both rectangles are provided. This response is complete and correct.

GUIDE PAPER 4

A student draws the two rectangles shown below.

Rectangle A — 8 units by 5 units, marked 40 (area), 26 (at top)

Rectangle B — 4 units by 10 units, marked 40 (area), 28 (at top)

The student thinks the two rectangles have the same area but different perimeters. Is the student correct? Be sure to include the areas and perimeters of both figures in your answer. [2]

Explain your answer.

The student is correct
because for Rectangle A the
area is 40 and for Rectangle
B the area is 40 which means
they have the same area
and the perimeter for
Rectangle A is 26 and for
Rectangle b the perimeter
is 28 so they have
different perimeters. GO ON

Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. Although the correct claim is chosen, and the areas and perimeters of both rectangles are provided, the explanation is incomplete because it is unclear how the solutions are obtained. This response correctly addresses only some elements of the task.

40

A student draws the two rectangles shown below.

10+10=20   4+4=8
10   20+8=28

8 units

8+8=16
5+5=21

5
8
5 units
Rectangle A

4
4 units
10 units
Rectangle B

The student thinks the two rectangles have the same area but different perimeters. Is the student correct? Be sure to include the areas and perimeters of both figures in your answer. [2]

Explain your answer.

Yes he is correct because for area i multiplied 4 and 10 and 8x5 and got 40 for both so the area is the same and for perimeter and 21 and 28 all different
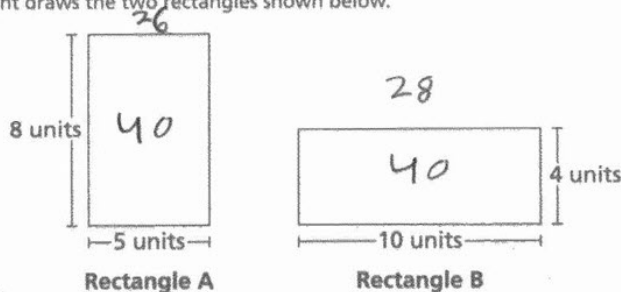
Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The correct claim is chosen; however, a calculation error occurs when computing the perimeter of Rectangle A resulting in an incorrect solution of 21. The rest of the explanation is correct. Per Scoring Policy #1 for 2- and 3-credit responses, the work shown in other than a designated "Explain" area should still be scored. This response correctly addresses only some elements of the task.

40

A student draws the two rectangles shown below.

8 units

5 units

Rectangle A

4 units

10 units

Rectangle B

The student thinks the two rectangles have the same area but different perimeters. Is the student correct? Be sure to include the areas and perimeters of both figures in your answer. [2]

Explain your answer.

Yes, the student is correct because If I mulitply both numbers in each rectangle I will get the same area witch is eaqual to 40 because 8x5=40 and 10x4=40.

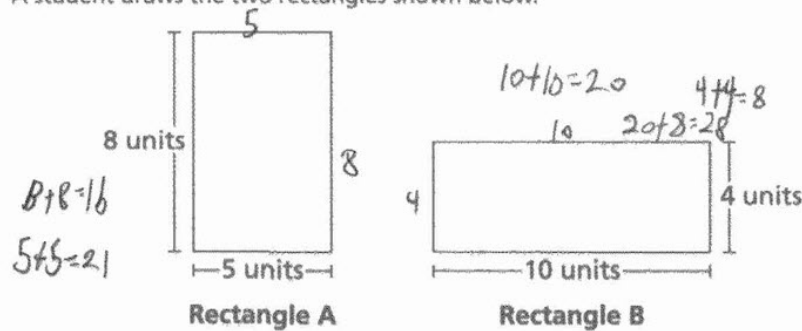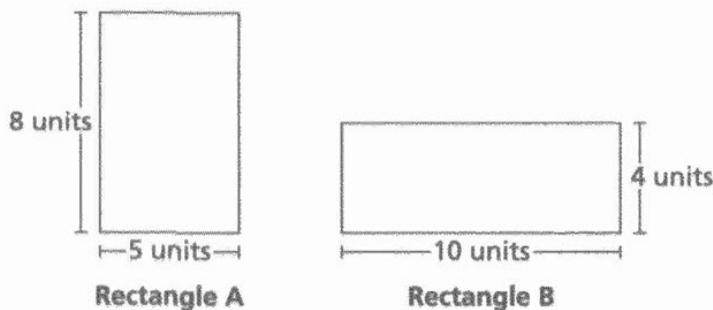| rectangleA	redangle B
8x5=40	10x4=40
answer: 40	answer: 40

Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. Although the correct claim is chosen, and the areas of both rectangles are provided, the explanation does not address the perimeters of the rectangles. This response correctly addresses only some elements of the task.

GUIDE PAPER 7

40

A student draws the two rectangles shown below.
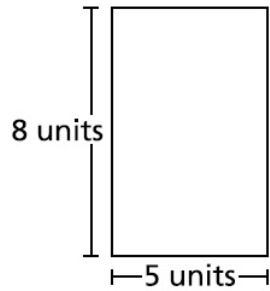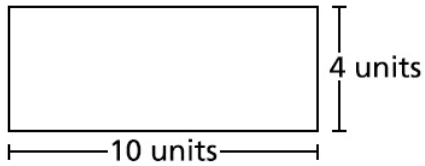
8 units

4 units

⊢—5 units—⊣

⊢———10 units———⊣

Rectangle A   **Rectangle B**

The student thinks the two rectangles have the same area but different perimeters. Is the student correct? Be sure to include the areas and perimeters of both figures in your answer.

Explain your answer.

No the student is not correct they have the same perimiter 10 × 4 = 40
and 8 × 5 = 40

Score Point 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Although the areas of both rectangles are correctly calculated, the response identifies them as the perimeters of the rectangles, and an incorrect claim is chosen. Holistically, the explanation is insufficient to show any understanding.

40

A student draws the two rectangles shown below.

8 units

5 units

Rectangle A

4 units

10 units
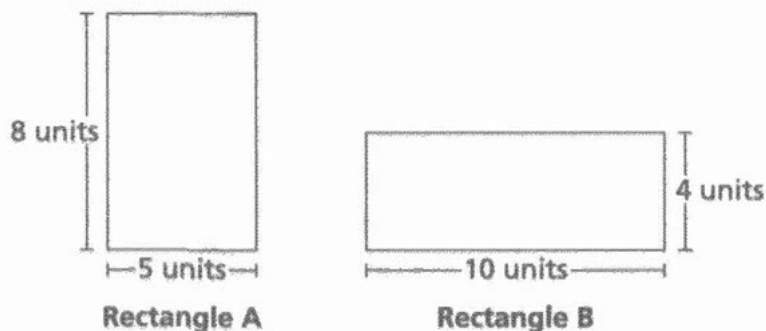
Rectangle B

The student thinks the two rectangles have the same area but different perimeters. Is the student correct? Be sure to include the areas and perimeters of both figures in your answer. [2]

Explain your answer.

The student is not correct because the rectangle are the same are should have the same area and perimeters, if the rectangles are different the It should have different area and perimeters.

Score Point 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. An incorrect claim is chosen, and the areas and perimeters of the rectangles are not provided. The explanation shows no understanding.

41

What fraction can be added to the expression shown below to have a total value of one whole?

$$\frac{2}{12} + \frac{7}{12}$$

Show your work.

Answer _____

41

What fraction can be added to the expression shown below to have a total value of one whole?

$$\frac{2}{12} + \frac{7}{12}$$

Show your work.

$$\frac{2}{12} + \frac{7}{12} = \frac{9}{12}$$

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

or

$$\frac{2}{12} + \frac{7}{12} + \frac{3}{12} = \frac{12}{12}$$

or other valid process

Answer $\frac{3}{12}$ *or* $\frac{1}{4}$ *or equivalent*

41

What fraction can be added to the expression shown below to have a total value of one whole? [2]

$$\frac{2}{12} + \frac{7}{12}$$

Show your work.

$$\frac{2}{12} + \frac{7}{12} = \frac{9}{12}$$

$$\frac{9}{12} + \frac{?}{12} = 1 \qquad ? = 3$$

$$\frac{9}{12} + \frac{3}{12} = \frac{12}{12} \text{ or } 1$$

Answer $\frac{3}{12}$

Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The solution is calculated correctly using a sound procedure. This response is complete and correct.

41

What fraction can be added to the expression shown below to have a total value of one whole?

$$\frac{2}{12} + \frac{7}{12}$$

Show your work.

$$\frac{9}{12} + \frac{1}{12} + \frac{1}{12} + \frac{1}{12} = \frac{12}{12}$$

Answer $\frac{3}{12}$

Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The solution is calculated correctly using a sound procedure. This response is complete and correct.

GUIDE PAPER 3

41

What fraction can be added to the expression shown below to have a total value of one whole?

$$\frac{2}{12} + \frac{7}{12}$$

Show your work.

$$\frac{2}{12} + \frac{7}{12} + \frac{3}{12} = 1 \ (or) \ \frac{12}{12}$$

Answer $\boxed{\frac{3}{12}}$

Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The solution is calculated correctly using a sound procedure. This response contains sufficient work to show a thorough understanding.

41

What fraction can be added to the expression shown below to have a total value of one whole?

$$\frac{2}{12} + \frac{7}{12}$$

Show your work.

2/12 +7/12 =9/12

Answer

my answer
is 9/12
because it
says add
2/12 + 7/12
and got 9/12

Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The expression is correctly evaluated but the result is inappropriately provided as the solution. This response correctly addresses only some elements of the task.

GUIDE PAPER 5

41

What fraction can be added to the expression shown below to have a total value of one whole? [2]

$$\frac{2}{12} + \frac{7}{12}$$

Show your work.

$$\frac{2}{12} + \frac{7}{12} = \frac{9}{12}$$

$$\frac{9}{12}$$
$$-\frac{12}{12}$$
$$\overline{\quad\quad}$$
$$\frac{3}{12}$$

Answer $\dfrac{3}{12}$

Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The expression is evaluated correctly, and a correct solution is provided; however, the subtraction equation is written in an incorrect order. This response correctly addresses only some elements of the task.

41

What fraction can be added to the expression shown below to have a total value of one whole? [2]

$$\frac{2}{12} + \frac{7}{12}$$

Show your work.

$$\frac{2}{12} + \frac{7}{12} = \frac{9}{12} + \frac{3}{12} =$$

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

Answer _____1_____

Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The expression is evaluated correctly and $\frac{3}{12}$ is determined in the work; however, 1 is inappropriately provided as the solution. This response correctly addresses only some elements of the task.

41

What fraction can be added to the expression shown below to have a total value of one whole?

$$\frac{2}{12} + \frac{7}{12}$$

Show your work.

$$\frac{2}{12} + \frac{7}{12} = 9$$

Answer $\frac{2}{12} + \frac{7}{12} = 9$

Score Point 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The expression is incorrectly evaluated and inappropriately provided as the solution. Holistically, this response shows no overall understanding.

41

What fraction can be added to the expression shown below to have a total value of one whole? [2]

$$\frac{2}{12} + \frac{7}{12}$$

Show your work.

Answer $\frac{3}{12}$

Score Point 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The answer is provided with no work or explanation. Per Scoring Policy #3 for 2- and 3-credit responses, this response receives no credit.

42

Stacey played the same game two times. She scored 36 points in the second game, which is 4 times as many points as she scored in the first game. How many points did Stacey score in the first game?

Explain how you know your answer is correct.

_____

_____

_____

42

Stacey played the same game two times. She scored 36 points in the second game, which is 4 times as many points as she scored in the first game. How many points did Stacey score in the first game?

Explain how you know your answer is correct.

Stacey scored 9 points in the first game because $36 \div 4 = 9$.

or

Stacey scored 9 points in the first game because $4 \times 9 = 36$.

or other valid explanation

42

Stacey played the same game two times. She scored 36 points in the second game, which is 4 times as many points as she scored in the first game. How many points did Stacey score in the first game? [2]

Explain how you know your answer is correct.

Stacey scored 9 points in the first game. First I drew a model than I had to find a number that will get 4 to 36.

She scored 9 points in the first game.

Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The explanation describes a correct process of determining how many points are scored in the first game and the correct solution is provided. The explanation is complete and correct.

42

Stacey played the same game two times. She scored 36 points in the second game, which is 4 times as many points as she scored in the first game. How many points did Stacey score in the first game?

Explain how you know your answer is correct.

$36 \div 4 = 9$
4,8,12,16,20,24,28,32,36
1, 2, 3, 4, 5, 6, 7, 8, 9
I know that the anaswer is correct because i skip counted from 4 all the way to 36 and then I counted how many times 4 skip counts all the way to 36 and i got 9 so $36 \div 4 = 9$

Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The explanation describes a correct process of determining how many points are scored in the first game and the correct solution is provided. The explanation is complete and correct.
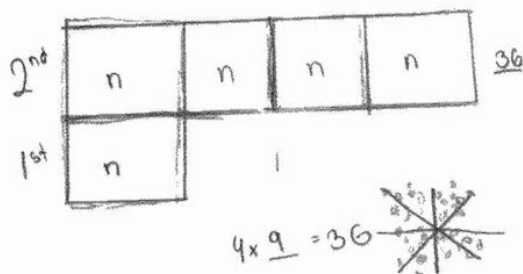
42

Stacey played the same game two times. She scored 36 points in the second game, which is 4 times as many points as she scored in the first game. How many points did Stacey score in the first game?

Explain how you know your answer is correct.

$36 \div 4 = 9$

Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The explanation describes a correct process of determining how many points are scored in the first game and the correct solution is provided. The explanation is sufficient to show a thorough understanding.

42

Stacey played the same game two times. She scored 36 points in the second game, which is 4 times as many points as she scored in the first game. How many points did Stacey score in the first game? [2]

Explain how you know your answer is correct.

I Know my answer is correct because I multiplayed 4.and 36 Which gave me The answer 144 as my anser.

$$\begin{array}{r} 36 \\ \times\ 4 \\ \hline 12 = 6+6 \end{array}$$

$$\begin{array}{r} 36 \\ +\ 36 \\ 36 \\ +\ 36 \\ \hline 144 \end{array}$$

12+12 = 24

$$\begin{array}{r} +\ 24 \\ 12 \\ \hline 30 \end{array}$$

$$\begin{array}{r} 36 \\ +\ 36 \\ \hline 72 \end{array}$$

$$\begin{array}{r} 36 \\ 36 \\ \hline 72 \end{array}$$

$$\begin{array}{r} 36 \\ \times\ 4 \\ \hline 144 \end{array}$$

$$\begin{array}{r} 72 \\ +\ 72 \\ \hline 144 \end{array}$$

Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The explanation uses a correct process of multiplication; however, the student misunderstands the number of points in the first game to be 4 times the number of points scored in the second game. This response contains an incorrect solution but applies a mathematically appropriate process.

42

Stacey played the same game two times. She scored 36 points in the second game, which is 4 times as many points as she scored in the first game. How many points did Stacey score in the first game? [2]

Explain how you know your answer is correct.

stacey Played the same game two t

$$4 \div 36 = 9$$

Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The number of points scored, in the first game, is correctly determined; however, the division equation is written in an incorrect order. This response correctly addresses only some elements of the task.

42

Stacey played the same game two times. She scored 36 points in the second game, which is 4 times as many points as she scored in the first game. How many points did Stacey score in the first game?

Explain how you know your answer is correct.

if 8 × 4 = 36 then se scored 8 points

8points

Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The explanation describes a correct process of multiplication to determine how many points are scored in the first game; however, the description contains a calculation error. This response contains an incorrect solution but applies a mathematically appropriate process.

42

Stacey played the same game two times. She scored 36 points in the second game, which is 4 times as many points as she scored in the first game. How many points did Stacey score in the first game?

Explain how you know your answer is correct.

$$2\overline{)36} \quad 18$$

Stacy scored 18 points in the first round of soccer she played.

Score Point 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Although division is used to determine the number of points in the first game, dividing by 2 shows no overall understanding of the relationship between the points scored for the two games.

42

Stacey played the same game two times. She scored 36 points in the second game, which is 4 times as many points as she scored in the first game. How many points did Stacey score in the first game?

Explain how you know your answer is correct.

9

Score Point 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The answer is provided with no work or explanation. Per Scoring Policy #3 for 2- and 3-credit responses, this response receives no credit.

43

Ms. Leonard has $110 to buy bottles of craft paint at the store. Each bottle is $9. What is the greatest number of bottles of craft paint Ms. Leonard can buy with the amount of money she has?

Show your work.

Answer _____ bottles

43

Ms. Leonard has $110 to buy bottles of craft paint at the store. Each bottle is $9. What is the greatest number of bottles of craft paint Ms. Leonard can buy with the amount of money she has?

Show your work.

$110 \div 9 = 12 \text{ r}2$

or

$9 \times 12 = 108$

$9 \times 13 = 117$

or

9, 18, 27, 36, 45, 54, 63, 72, 81, 90, 99, <u>108</u>, 117

or other valid process

Answer _____12_____ bottles

43

Ms. Leonard has $110 to buy bottles of craft paint at the store. Each bottle is $9.
What is the greatest number of bottles of craft paint Ms. Leonard can buy with the
amount of money she has? [2]

Show your work.

$$12R2$$
$$9\overline{)110}$$
$$-9\downarrow$$
$$\overline{20}$$
$$-18$$
$$2$$

$$\begin{array}{r} 9 \\ \times 12 \\ \hline 108 \end{array}$$

$$\begin{array}{r} 108 \\ + 2 \\ \hline 110 \end{array}$$

Answer ____(12)____ bottles

Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The number of bottles is calculated correctly by using sound procedures. This response is complete and correct.

GUIDE PAPER 2

43

Ms. Leonard has $110 to buy bottles of craft paint at the store. Each bottle is $9. What is the greatest number of bottles of craft paint Ms. Leonard can buy with the amount of money she has? [2]

Show your work.

$$110 - 9 = 101$$
$$101 - 9 = 92$$
$$92 - 9 = 83$$
$$83 - 9 = 74$$
$$74 - 9 = 65$$
$$65 - 9 = 56$$
$$56 - 9 = 47$$
$$47 - 9 = 38$$
$$38 - 9 = 29$$
$$29 - 9 = 20$$
$$20 - 9 = 11$$
$$11 - 9 = 2$$

Answer ___12___ bottles

Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The number of bottles is calculated correctly by using repeated subtraction. This response is complete and correct.

43

Ms. Leonard has $110 to buy bottles of craft paint at the store. Each bottle is $9.
What is the greatest number of bottles of craft paint Ms. Leonard can buy with the
amount of money she has?

Show your work.

$110 \div 9 = 12 \text{ r}2$

Answer   12   bottles

Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures
in the task. The number of bottles is calculated correctly by using division. This response is complete
and correct.

43

Ms. Leonard has $110 to buy bottles of craft paint at the store. Each bottle is $9. What is the greatest number of bottles of craft paint Ms. Leonard can buy with the amount of money she has?

Show your work.

$$110 \div 9 = 12$$

Answer | 12 bottels | bottles

Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. Although the correct solution is determined, $110 \div 9 \neq 12$. The work does not address the remainder of $110 \div 9$. This response contains the correct solution, but the required work is incomplete.

GUIDE PAPER 5

43

Ms. Leonard has $110 to buy bottles of craft paint at the store. Each bottle is $9. What is the greatest number of bottles of craft paint Ms. Leonard can buy with the amount of money she has? [2]

Show your work.

$\div 110$
9
$\overline{}$
$12 r2$

Chek ↑12
9
‾‾‾‾‾‾
108

59413

09
18
27
36
45
54
63
72
81
90
99
108

Answer ___12r2___ bottles

Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. Sound procedures are used to determine the solution; however, the remainder of the quotient is inappropriately included in the solution. This response correctly addresses only some elements of the task.

GUIDE PAPER 6

43

Ms. Leonard has $110 to buy bottles of craft paint at the store. Each bottle is $9.
What is the greatest number of bottles of craft paint Ms. Leonard can buy with the
amount of money she has? [2]

Show your work.

$$
\begin{array}{r}
3=13 \\
9\overline{)110} \\
-90 \\
\cancel{20} \\
-27 \\
\hline
0\ 3R
\end{array}
$$

Answer Ms. Leonard can buy 13 bottles and have a bottles reminder of 3$

Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. A calculation error occurs when computing $110 - 90$ because $110 - 90 \neq 30$. The rest of the work is performed correctly. This response contains an incorrect solution but applies a mathematically appropriate process.

43

Ms. Leonard has $110 to buy bottles of craft paint at the store. Each bottle is $9.
What is the greatest number of bottles of craft paint Ms. Leonard can buy with the amount of money she has?

Show your work.

> 9 ÷ 110=

Answer 22r2 bottles

Score Point 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The equation is written in an incorrect order and an incorrect solution is determined. Holistically, this response shows no overall understanding.

43

Ms. Leonard has $110 to buy bottles of craft paint at the store. Each bottle is $9. What is the greatest number of bottles of craft paint Ms. Leonard can buy with the amount of money she has? [2]

Show your work.

$$\begin{array}{r} {}^{1}1\,{}^{1}0 \\ \times \quad 9 \\ \hline \end{array}$$

$$\begin{array}{r} 0 \\ 90 \\ + \;900 \\ \hline 990 \end{array}$$

Answer ___990___ bottles

Score Point 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. An incorrect solution is obtained by using an incorrect procedure. Holistically, this response shows no overall understanding.

44

Mr. Benson is making burgers based on the information below.

- He has 4 pounds of meat.
- He uses $\frac{1}{4}$ pound of meat for each burger.
- He makes 9 burgers.

How many pounds of meat does Mr. Benson have left over after making all the burgers?

Explain how you determined your answer.

_____

_____

_____

44

Mr. Benson is making burgers based on the information below.

- He has 4 pounds of meat.
- He uses $\dfrac{1}{4}$ pound of meat for each burger.
- He makes 9 burgers.

How many pounds of meat does Mr. Benson have left over after making all the burgers?

Explain how you determined your answer.

$9 \times \dfrac{1}{4} = 2\dfrac{1}{4}$ and $4 - 2\dfrac{1}{4} = 1\dfrac{3}{4}$. Mr. Benson has $1\dfrac{3}{4}$ pounds of meat left over.

or

$\dfrac{16}{4} - \dfrac{9}{4} = \dfrac{7}{4}$. Mr. Benson has $\dfrac{7}{4}$ pounds of meat left over.

or other valid explanation

44

Mr. Benson is making burgers based on the information below.

- He has 4 pounds of meat.

- He uses $\frac{1}{4}$ pound of meat for each burger.

- He makes 9 burgers.

How many pounds of meat does Mr. Benson have left over after making all the burgers?

Explain how you determined your answer.

$$9 \times \frac{1}{4} = \frac{9}{4} = 2\frac{1}{4}$$

$$4 - 2\frac{1}{4} = 1\frac{3}{4} \text{ pounds of meat}$$

He makes 9 burgers with $\frac{1}{4}$ pounds of meat in each burger so

$9 \times \frac{1}{4} = 2\frac{1}{4}$ .If he has 4 pounds of meat then you would do

$4 - 2\frac{1}{4}$ wich equals $1\frac{3}{4}$ pounds of meat.

Score Point 3 (out of 3 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The amount of meat used to make the burgers and the amount of meat left over are correctly identified in a valid explanation. This explanation is complete and correct.

GUIDE PAPER 2

44

Mr. Benson is making burgers based on the information below.

- He has 4 pounds of meat.
- He uses $\frac{1}{4}$ pound of meat for each burger.
- He makes 9 burgers.

How many pounds of meat does Mr. Benson have left over after making all the burgers?

Explain how you determined your answer.

$$\frac{1}{4} \times 9 = 2\frac{1}{4} \qquad 4 - 2\frac{1}{4} = 1\frac{3}{4}$$

Score Point 3 (out of 3 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The amount of meat used to make the burgers and the amount of meat left over are correctly identified in a valid explanation. The explanation is sufficient to show a thorough understanding.

44

Mr. Benson is making burgers based on the information below.

- He has 4 pounds of meat.
- He uses $\frac{1}{4}$ pound of meat for each burger.
- He makes 9 burgers.

How many pounds of meat does Mr. Benson have left over after making all the burgers?

Explain how you determined your answer.

Mr.Benson has $\frac{7}{4}$ pounds of meat left.

$$\frac{16}{4} - \frac{9}{4} = \frac{7}{4}$$

pounds of meat left.

Score Point 3 (out of 3 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The amount of meat used to make the burgers and the amount of meat left over are correctly identified in a valid explanation. This explanation is complete and correct.

44

Mr. Benson is making burgers based on the information below.

- He has 4 pounds of meat.

- He uses $\frac{1}{4}$ pound of meat for each burger.

- He makes 9 burgers.

How many pounds of meat does Mr. Benson have left over after making all the burgers? [3]

Explain how you determined your answer.

Mr. Benson has 1$\frac{3}{4}$ pounds of meat left over.

$$\frac{9}{4} \times \frac{1}{4} = \frac{9}{4} = 2\frac{1}{4}$$

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

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

Score Point 2 (out of 3 credits)

This response demonstrates a partial understanding of the mathematical concepts and procedures in the task. The amount of meat used to make the burgers is correctly identified; however, the subtraction of the amount of meat used from the total amount of meat is in an incorrect order. This explanation reflects some minor misunderstanding of the underlying mathematical concepts and procedures.

44

Mr. Benson is making burgers based on the information below.

- He has 4 pounds of meat.

- He uses $\frac{1}{4}$ pound of meat for each burger.

- He makes 9 burgers.

How many pounds of meat does Mr. Benson have left over after making all the burgers? [3]

Explain how you determined your answer.

Mr. Benson has $1\frac{3}{4}$ pounds of meat left over because 4x4=16 and 16-9=7 and $7=1\frac{3}{4}$.

$4 \times 4 = 16$

$\begin{array}{r} 16 \\ -9 \\ \hline 7 \end{array} = 1\frac{3}{4}$

Score Point 2 (out of 3 credits)

This response demonstrates a partial understanding of the mathematical concepts and procedures in the task. Although the amount of meat left over is correctly determined, the process to obtain the solution addresses only the numerators and does not address the denominators of the fractions. This explanation appropriately addresses most, but not all, aspects of the task.

44

Mr. Benson is making burgers based on the information below.

- He has 4 pounds of meat.

- He uses $\frac{1}{4}$ pound of meat for each burger.

- He makes 9 burgers.

How many pounds of meat does Mr. Benson have left over after making all the burgers?

Explain how you determined your answer.

$$\frac{1}{4} \times 9 = \frac{9}{4} = 2\frac{1}{4} \qquad 4 - 2\frac{1}{4} = 2\frac{3}{4}$$

Mr.Benson has $2\frac{3}{4}$ pounds of meat left over

Score Point 2 (out of 3 credits)

This response demonstrates a partial understanding of the mathematical concepts and procedures in the task. The amount of meat used to make the burgers is correctly determined but a calculation error occurs when determining the amount of meat left over. This explanation contains an incorrect solution but applies a mathematically appropriate process.

44

Mr. Benson is making burgers based on the information below.

- He has 4 pounds of meat.

- He uses $\frac{1}{4}$ pound of meat for each burger.

- He makes 9 burgers.

How many pounds of meat does Mr. Benson have left over after making all the burgers?

Explain how you determined your answer.

$$\frac{9}{4} = 2\frac{1}{4} \qquad 2\frac{1}{4} - 4 = 2\frac{1}{4} \qquad \text{he uses } 2\frac{1}{4} \text{ pounds}$$
of meat

Score Point 1 (out of 3 credits)

This response demonstrates only a limited understanding of the mathematical concepts and procedures in the task. The amount of meat used to make the burgers is correctly determined. However, the subtraction equation is in an incorrect order with a calculation error, and the amount of meat used is inappropriately provided as the solution. This explanation exhibits multiple flaws related to misunderstanding of important aspects of the task.

44

Mr. Benson is making burgers based on the information below.

- He has 4 pounds of meat.

- He uses $\frac{1}{4}$ pound of meat for each burger.

- He makes 9 burgers.

How many pounds of meat does Mr. Benson have left over after making all the burgers?

Explain how you determined your answer.

4-2 1/4=1 3/4

Score Point 1 (out of 3 credits)

This response demonstrates only a limited understanding of the mathematical concepts and procedures in the task. The amount of meat left over is correctly determined, but it is unclear how the amount of meat used is obtained. This response contains the correct solution, but the explanation is insufficient.

44

Mr. Benson is making burgers based on the information below.

- He has 4 pounds of meat.

- He uses $\frac{1}{4}$ pound of meat for each burger.

- He makes 9 burgers.

How many pounds of meat does Mr. Benson have left over after making all the burgers? [3]

Explain how you determined your answer.

$1 \times 9 = 9 = \frac{9}{4} = 2\frac{1}{4}$, So Mr. Benson use $2\frac{1}{4}$ pound of meat.

Score Point 1 (out of 3 credits)

This response demonstrates only a limited understanding of the mathematical concepts and procedures in the task. The amount of meat used to make the burgers is correctly determined; however, an incorrect statement of equality (9 ≠ ¾) is used to demonstrate the steps taken to determine 2¼ and the amount of meat left over is not addressed. This response addresses some elements of the task correctly, but the explanation is incomplete.

GUIDE PAPER 10

44

Mr. Benson is making burgers based on the information below.

- He has 4 pounds of meat.

- He uses $\frac{1}{4}$ pound of meat for each burger.

- He makes 9 burgers.

How many pounds of meat does Mr. Benson have left over after making all the burgers?

Explain how you determined your answer.

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

Score Point 0 (out of 3 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The answer is provided with no work or explanation. Per Scoring Policy #3 for 2- and 3-credit responses, this response receives no credit.

44

Mr. Benson is making burgers based on the information below.

- He has 4 pounds of meat.

- He uses $\frac{1}{4}$ pound of meat for each burger.

- He makes 9 burgers.

How many pounds of meat does Mr. Benson have left over after making all the burgers? [3]

Explain how you determined your answer.

he will have $\frac{1}{4}$ left i know
that by turning the deninter
in to $\frac{1}{2}$s.

4pounds meat

$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$

$\frac{1}{4}$left $\frac{9}{2}$

Score Point 0 (out of 3 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The explanation is incoherent and shows no overall understanding.

Grade 4

Mathematics

Scoring Leader Materials
2023 Training Set