Name: _____

New York State Testing Program

Mathematics Test
Session 1

Grade 4

Spring 2024

RELEASED QUESTIONS

Session 1

TIPS FOR TAKING THE TEST

Here are some ideas to help you do your best:

- Read each question carefully. Take your time.
- You have a ruler and a protractor that you can use on the test if they help you answer the question.

1 Carter has 9 comic books. Ben has 3 times as many comic books as Carter. How many comic books does Ben have?

A 6

B 12

C 24

D 27

2 What value makes the equation shown below true?

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

A 3

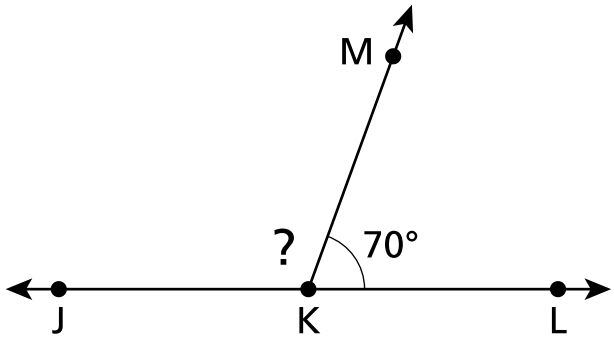
B 9

C 12

D 16

GO ON

7 Ray KM divides straight angle JKL into two parts as shown below.



Which equation represents how to find the measure, in degrees, of angle JKM ?

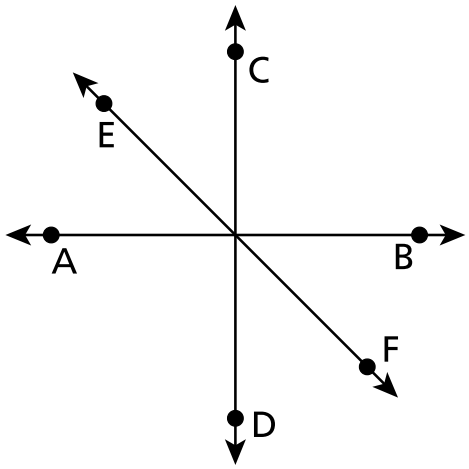
A $90 - 20 = \underline{\ ?\ }$

B $90 - 70 = \underline{\ ?\ }$

C $180 - 70 = \underline{\ ?\ }$

D $180 - 110 = \underline{\ ?\ }$

10 Which statement about the diagram shown below is **most likely** true?



A Line AB is perpendicular to line CD.

B Line AB is parallel to line CD.

C Line EF is perpendicular to line CD.

D Line EF is parallel to line CD.

GO ON

11 Which fraction can be added to $\frac{4}{12}$ to equal 1 whole?

A $\frac{1}{12}$

B $\frac{4}{12}$

C $\frac{6}{12}$

D $\frac{8}{12}$

12 Which number, when rounded to the nearest thousand, is 17,000 ?

A 16,129

B 16,921

C 17,538

D 17,853

15 Allison is training for a race. She runs $\frac{8}{10}$ mile each day. Which fraction is equivalent to the number of miles Allison runs in 7 days?

A $\frac{56}{10}$

B $\frac{15}{10}$

C $\frac{56}{70}$

D $\frac{8}{70}$

16 What is the value of $102 \div 6$?

A 16

B 17

C 96

D 108

22 What is the value of the expression shown below?

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

A $1\frac{1}{4}$

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

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

D $2\frac{3}{4}$

23 How many hundreds are in 1,000 ?

A 1

B 10

C 100

D 1,000

24 Which equation is **not** true?

A $5 \times \frac{3}{4} = \frac{15}{20}$

B $4 \times \frac{2}{5} = 8 \times \frac{1}{5}$

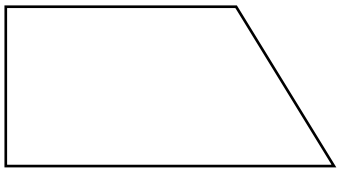
C $3 \times \frac{5}{6} = \frac{15}{6}$

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

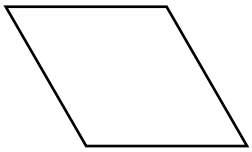
GO ON

26 Which figure appears to be a rectangle?

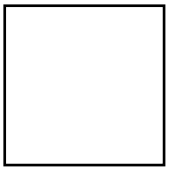
A



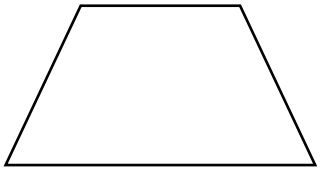
C



B



D



29 What is the product of 3 and 2,470 ?

A 6,210

B 6,213

C 7,410

D 7,413

GO ON

30 The perimeter of a square floor is 120 feet. What is the length, in feet, of each side of the floor?

A 20

B 30

C 40

D 60

STOP

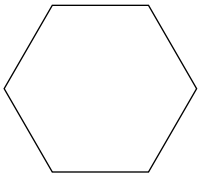
Session 2

TIPS FOR TAKING THE TEST

Here are some ideas to help you do your best:

- Read each question carefully. Take your time.
- You have a ruler and a protractor that you can use on the test if they help you answer the question.
- Be sure to show your work when asked.
- Be sure to explain your answer when asked.

31 A figure with all equal sides is shown below.



How many lines of symmetry does the figure have?

A 1

B 2

C 5

D 6

32 A group of 80 students goes to a zoo. The price for each student to ride the bus to the zoo is $3. The price for each student to get into the zoo is $2. What is the total price for all of the students to ride the bus and get into the zoo?

A $160

B $240

C $400

D $480

GO ON

33 Which number sentence shows a correct comparison?

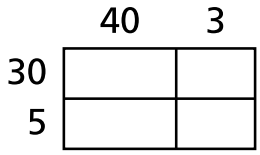
A $\frac{1}{3} > \frac{3}{4}$

B $\frac{4}{5} < \frac{1}{3}$

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

D $\frac{3}{4} < \frac{4}{5}$

34 An incomplete area model is shown below. The area model can be used to represent the product of 35 and 43.



Which equation shows how to find the value of the area model after it is complete?

A $1{,}200 + 200 + 90 + 15 = 1{,}505$

B $1{,}200 + 20 + 90 + 15 = 1{,}325$

C $120 + 200 + 90 + 15 = 425$

D $120 + 20 + 90 + 15 = 245$

35 Which expression is equivalent to $2\frac{4}{6}$?

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

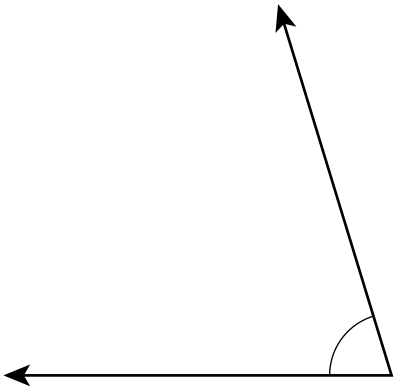
B $\frac{6}{6}+\frac{6}{6}+\frac{2}{6}+\frac{1}{6}+\frac{1}{6}$

C $1+1+\frac{3}{3}+\frac{1}{3}$

D $\frac{6}{6}+\frac{6}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}$

36 **This question is worth 1 credit.**

What is the measure, in degrees, of the angle shown below?



Answer _____ degrees

37 **This question is worth 1 credit.**

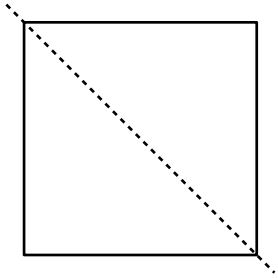
List all the factors of 21.

Answer _____

GO ON

38 **This question is worth 1 credit.**

A square is divided into two equal triangles as shown below.



What type of triangles are created when the square is divided into the two equal triangles?

Answer _____ triangles

39 **This question is worth 2 credits.**

A soccer team sold water bottles to earn money to buy new soccer balls. The team earned a total of $170. If the team pays $9 per soccer ball, what is the greatest number of soccer balls they can buy with the money earned?

Explain your answer.

40 **This question is worth 2 credits.**

Two numbers are shown below.

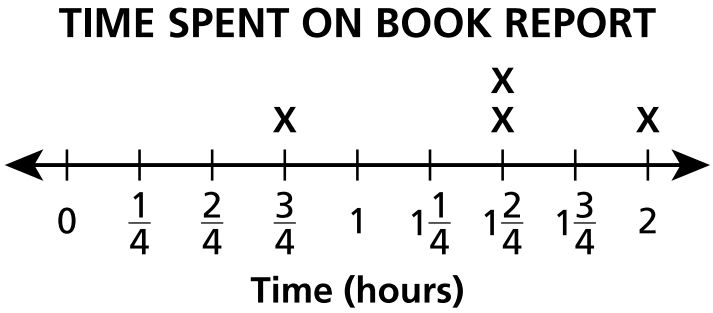
4,699 and 4,780

Write the two numbers in expanded form, and then compare them using the >, <, or = symbol. Be sure to include what you know about place value in your answer.

Explain how you know your answer is correct.

41 **This question is worth 2 credits.**

The line plot below shows the amount of time Jamie spent working on his book report each day for four days.



What is the total amount of time, in hours, that Jamie spent working on his book report for those four days?

Show your work.

Answer _____ hours

GO ON

42 **This question is worth 2 credits.**

Two expressions are shown below.

Expression A: $\frac{1}{4} \times 2$

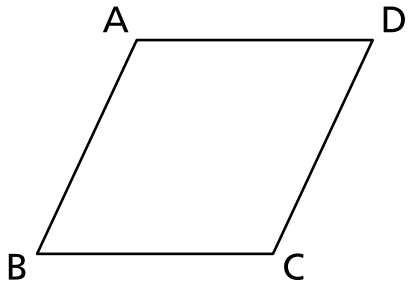
Expression B: $\frac{1}{2} \times 5$

Which expression, A or B, has a value greater than 1 ? Be sure to include the value of each expression in your answer.

Explain how you know your answer is correct.

43 **This question is worth 2 credits.**

A rhombus is shown below.



Use what you know about parallel, perpendicular, or intersecting sides to describe one pair of sides in the rhombus shown.

Explain how you know your answer is correct.

44 **This question is worth 3 credits.**

Chairs have been set up for an event. There are 11 rows of chairs with 12 chairs in each row. When the event is over, the chairs are put away on chair racks. If each chair rack holds exactly 9 chairs, what is the **fewest** number of chair racks needed to hold all of the chairs?

Explain how you know your answer is correct.

STOP

THE STATE EDUCATION DEPARTMENT

THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234

2024 Mathematics Tests Map to the Standards

Grade 4

Question	Type	Key	Points	Standard	Domain	Secondary Standard(s)	Multiple Choice Questions	Constructed Response Questions	
							Percentage of Students Who Answered Correctly (P-Value)	Average Points Earned	P-Value (Average Points Earned ÷ Total Possible Points)
Session 1									
1	Multiple Choice	D	1	NGLS.Math.Content.NY-4.OA.2	Operations and Algebraic Thinking		0.91		
2	Multiple Choice	C	1	NGLS.Math.Content.NY-4.NF.1	Number and Operations - Fractions		0.77		
7	Multiple Choice	C	1	NGLS.Math.Content.NY-4.MD.7	Measurement and Data		0.67		
10	Multiple Choice	A	1	NGLS.Math.Content.NY-4.G.1	Geometry		0.74		
11	Multiple Choice	D	1	NGLS.Math.Content.NY-4.NF.3a	Number and Operations - Fractions		0.77		
12	Multiple Choice	B	1	NGLS.Math.Content.NY-4.NBT.3	Number and Operations in Base Ten		0.82		
15	Multiple Choice	A	1	NGLS.Math.Content.NY-4.NF.4c	Number and Operations - Fractions		0.69		
16	Multiple Choice	B	1	NGLS.Math.Content.NY-4.NBT.6	Number and Operations in Base Ten		0.73		
22	Multiple Choice	B	1	NGLS.Math.Content.NY-4.NF.3c	Number and Operations - Fractions		0.46		
23	Multiple Choice	B	1	NGLS.Math.Content.NY-4.NBT.1	Number and Operations in Base Ten		0.60		
24	Multiple Choice	A	1	NGLS.Math.Content.NY-4.NF.4b	Number and Operations - Fractions		0.58		
26	Multiple Choice	B	1	NGLS.Math.Content.NY-4.G.2c	Geometry		0.60		
29	Multiple Choice	C	1	NGLS.Math.Content.NY-4.NBT.5	Number and Operations in Base Ten		0.69		
30	Multiple Choice	B	1	NGLS.Math.Content.NY-4.MD.3	Measurement and Data		0.54		
Session 2									
31	Multiple Choice	D	1	NGLS.Math.Content.NY-4.G.3	Geometry		0.58		
32	Multiple Choice	C	1	NGLS.Math.Content.NY-4.OA.3a	Operations and Algebraic Thinking		0.58		
33	Multiple Choice	D	1	NGLS.Math.Content.NY-4.NF.2	Number and Operations - Fractions		0.74		
34	Multiple Choice	A	1	NGLS.Math.Content.NY-4.NBT.5	Number and Operations in Base Ten		0.67		
35	Multiple Choice	B	1	NGLS.Math.Content.NY-4.NF.3b	Number and Operations - Fractions		0.63		
36	Constructed Response	n/a	1	NGLS.Math.Content.NY-4.MD.6	Measurement and Data			0.63	0.63
37	Constructed Response	n/a	1	NGLS.Math.Content.NY-4.OA.4	Operations and Algebraic Thinking			0.58	0.58
38	Constructed Response	n/a	1	NGLS.Math.Content.NY-4.G.2a	Geometry			0.52	0.52
39	Constructed Response	n/a	2	NGLS.Math.Content.NY-4.NBT.6	Number and Operations in Base Ten			0.79	0.40
40	Constructed Response	n/a	2	NGLS.Math.Content.NY-4.NBT.2b	Number and Operations in Base Ten	NGLS.Math.Content.NY-4.NBT.2a		1.05	0.53
41	Constructed Response	n/a	2	NGLS.Math.Content.NY-4.MD.4	Measurement and Data			0.85	0.43
42	Constructed Response	n/a	2	NGLS.Math.Content.NY-4.NF.4a	Number and Operations - Fractions			0.92	0.46
43	Constructed Response	n/a	2	NGLS.Math.Content.NY-4.G.1	Geometry			0.82	0.41
44	Constructed Response	n/a	3	NGLS.Math.Content.NY-4.OA.3b	Operations and Algebraic Thinking	NGLS.Math.Content.NY-4.OA.3a		1.13	0.38

*This item map is intended to identify the primary analytic skills necessary to successfully answer each question. However, some questions measure proficiencies described in multiple standards, including a balanced combination of procedural and conceptual understanding.

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).

1-Credit Constructed-Response Mathematics Scoring Policies (2024)

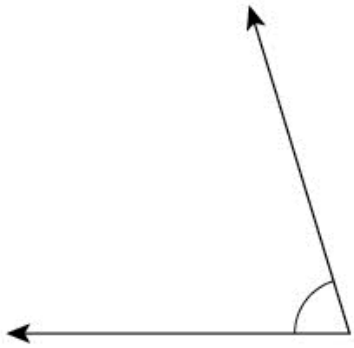
1. The student is **not** required to show work for a 1-credit constructed-response question, therefore, any work shown will **not** be scored. A clearly identified correct response should still receive full credit.
2. If the student clearly identifies a correct answer but fails to write that answer 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.

2- and 3-Credit Constructed-Response Mathematics Scoring Policies (2024)

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

What is the measure, in degrees, of the angle shown below?

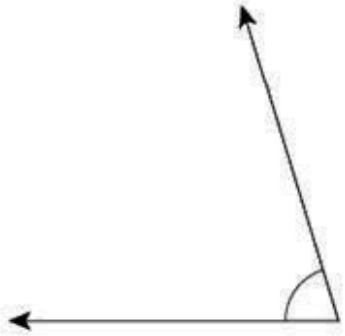


Answer _____ degrees

EXEMPLARY RESPONSE

36

What is the measure, in degrees, of the angle shown below?



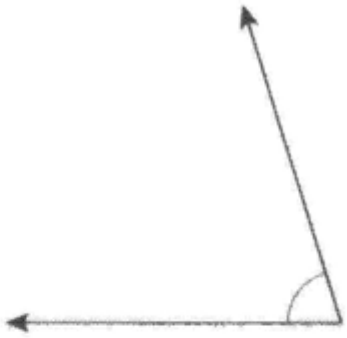
Answer 73 degrees

OR an answer within 5 degrees of 73

GUIDE PAPER 1

36

What is the measure, in degrees, of the angle shown below? [1]



Answer 73 degrees

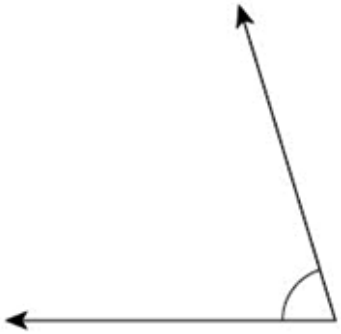
Score Credit 1 (out of 1 credit)

A correct answer is provided.

GUIDE PAPER 2

36

What is the measure, in degrees, of the angle shown below?



Answer 75 degrees

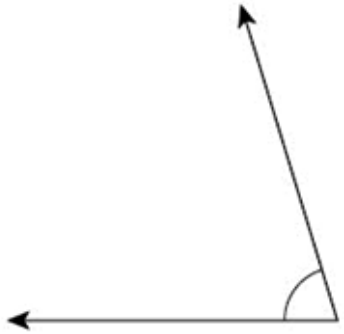
Score Credit 1 (out of 1 credit)

A correct answer is provided.

GUIDE PAPER 3

36

What is the measure, in degrees, of the angle shown below?



Answer 105 degrees

Score Credit 0 (out of 1 credit)

An incorrect answer is provided.

37

List all the factors of 21.

Answer _____

EXEMPLARY RESPONSE

37

List all the factors of 21.

Answer 1, 3, 7, 21

GUIDE PAPER 1

37

List all the factors of 21.

Answer 1,3,7,21

Score Credit 1 (out of 1 credit)

A correct answer is provided.

GUIDE PAPER 2

37

List all the factors of 21. [1]

7, 3, 21, 1

Answer 7, 3, 21, 1

Score Credit 1 (out of 1 credit)

A correct answer is provided.

GUIDE PAPER 3

37

List all the factors of 21.

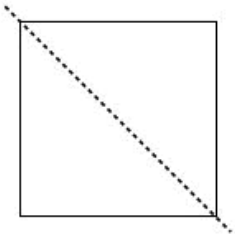
Answer 3 7

Score Credit 0 (out of 1 credit)

An incorrect answer is provided.

38

A square is divided into two equal triangles as shown below.



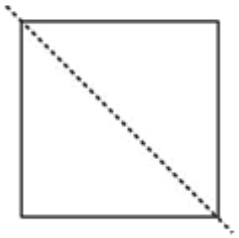
What type of triangles are created when the square is divided into the two equal triangles?

Answer _____ triangles

EXEMPLARY RESPONSE

38

A square is divided into two equal triangles as shown below.



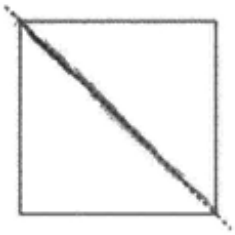
What type of triangles are created when the square is divided into the two equal triangles?

Answer right *OR* isosceles triangles

GUIDE PAPER 1

38

A square is divided into two equal triangles as shown below.



What type of triangles are created when the square is divided into the two equal triangles? [1]

Answer right triangles

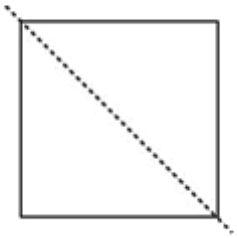
Score Credit 1 (out of 1 credit)

A correct answer is provided.

GUIDE PAPER 2

38

A square is divided into two equal triangles as shown below.



What type of triangles are created when the square is divided into the two equal triangles?

Answer icosilies triangles

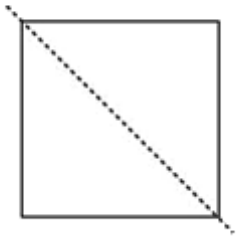
Score Credit 1 (out of 1 credit)

A correct answer is provided.

GUIDE PAPER 3

38

A square is divided into two equal triangles as shown below.



What type of triangles are created when the square is divided into the two equal triangles?

Answer equilateral triangles

Score Credit 0 (out of 1 credit)

An incorrect answer is provided.

39

A soccer team sold water bottles to earn money to buy new soccer balls. The team earned a total of $170. If the team pays $9 per soccer ball, what is the greatest number of soccer balls they can buy with the money earned?

Explain your answer.

EXEMPLARY RESPONSE

39

A soccer team sold water bottles to earn money to buy new soccer balls. The team earned a total of $170. If the team pays $9 per soccer ball, what is the greatest number of soccer balls they can buy with the money earned?

Explain your answer.

18

I divided $170 by $9 and I got 18 and a remainder of 8. So, they can buy 18 soccer balls and are left with $8. Since each ball costs $9, it is not possible to buy another ball with only $8. They can only buy 18 balls.

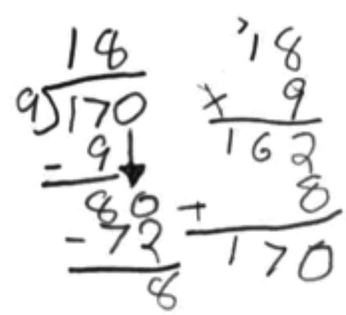
OR other valid explanation

39

A soccer team sold water bottles to earn money to buy new soccer balls. The team earned a total of $170. If the team pays $9 per soccer ball, what is the greatest number of soccer balls they can buy with the money earned?

Explain your answer.

The total number of soccer balls they can buy is 18. They can only buy 18 because they dont have enough to buy 19, and they only have enough money for 18.



Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The money earned is divided by the cost per soccer ball and the remainder is correctly interpreted. The explanation that “they dont have enough to buy 19, and they only have enough money for 18” demonstrates a thorough understanding. All work is shown, and a correct answer is provided. This response is complete and correct.

GUIDE PAPER 2

39

A soccer team sold water bottles to earn money to buy new soccer balls. The team earned a total of $170. If the team pays $9 per soccer ball, what is the greatest number of soccer balls they can buy with the money earned?

Explain your answer.

$170 \div 9 = 18$ r8 $9 > 8$
They could buy 18 soccer balls

Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The money earned is divided by the cost per soccer ball and the remainder is correctly interpreted with the explanation that 9 is greater than 8. Sufficient work is shown, and the correct answer is provided. This response is complete and correct.

GUIDE PAPER 3

39

A soccer team sold water bottles to earn money to buy new soccer balls. The team earned a total of $170. If the team pays $9 per soccer ball, what is the greatest number of soccer balls they can buy with the money earned?

Explain your answer.

I divided 9 into 170 my answer was 18 R8. Therefore the greatist number of soccer balls they could afford was 18.

Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The money earned is divided by the cost per soccer ball and the remainder is correctly interpreted. The explanation is sufficient to demonstrate a thorough understanding and the correct answer is provided. This response is complete and correct.

GUIDE PAPER 4

39

A soccer team sold water bottles to earn money to buy new soccer balls. The team earned a total of $170. If the team pays $9 per soccer ball, what is the greatest number of soccer balls they can buy with the money earned?

Explain your answer.

$170 \div 9 = 17\text{remainder}7$

the team can buy 17 soccer balls with 170 dollars

Score Credit 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The money earned is divided by the cost per soccer ball. A calculation error occurs when computing 170 divided by 9, resulting in an incorrect answer of 17; however, the remainder is correctly interpreted. This response correctly addresses only some elements of the task.

GUIDE PAPER 5

39

A soccer team sold water bottles to earn money to buy new soccer balls. The team earned a total of $170. If the team pays $9 per soccer ball, what is the greatest number of soccer balls they can buy with the money earned?

Explain your answer.

$170 ÷ $9 = 18 soccer balls

Score Credit 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The money earned is divided by the cost per soccer ball, but an incorrect equation that does not address the remainder is written. This response contains the correct solution, but the required explanation is incomplete. This response correctly addresses only some elements of the task.

GUIDE PAPER 6

39

A soccer team sold water bottles to earn money to buy new soccer balls. The team earned a total of $170. If the team pays $9 per soccer ball, what is the greatest number of soccer balls they can buy with the money earned?

Explain your answer.

I did 9 ÷ 170 and got 18 r8 but the remainder is not a 9 so they could not buy a nother soccer ball so the soccer team could buy 18 soccer balls

Score Credit 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. Although a correct answer of 18 is provided, the division is inversely written as 9 divided by 170. The explanation that "the remainder is not a 9 so they could not buy a nother soccer ball" is sufficient to interpret the remainder. This response correctly addresses only some elements of the task.

GUIDE PAPER 7

39

A soccer team sold water bottles to earn money to buy new soccer balls. The team earned a total of $170. If the team pays $9 per soccer ball, what is the greatest number of soccer balls they can buy with the money earned?

Explain your answer.

108 117 126 135 144 153 162 171 so i counted by nines all the way to 171 they would have 8 soccer balls

Score Credit 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 procedure of counting by nines could be a valid method of solution, this response fails to reference when the counting exceeds 170, and also does not mention the first eleven soccer balls (groups of 9) counted. The answer of 8 soccer balls is incorrectly given. Holistically, this response shows no overall understanding of the task.

39

A soccer team sold water bottles to earn money to buy new soccer balls. The team earned a total of $170. If the team pays $9 per soccer ball, what is the greatest number of soccer balls they can buy with the money earned?

Explain your answer.

$9 \div 170 = 18$

Score Credit 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 answer of 18 is provided, it is arrived at by incorrect procedure (9 is divided by 170) and the remainder is not addressed. Holistically, this response shows no overall understanding of the task.

40

Two numbers are shown below.

4,699 and 4,780

Write the two numbers in expanded form, and then compare them using the >, <, or = symbol. Be sure to include what you know about place value in your answer.

Explain how you know your answer is correct.

EXEMPLARY RESPONSE

40

Two numbers are shown below.

4,699 and 4,780

Write the two numbers in expanded form, and then compare them using the >, <, or = symbol. Be sure to include what you know about place value in your answer.

Explain how you know your answer is correct.

4,000 + 600 + 90 + 9 < 4,000 + 700 + 80 + 0

OR

4,000 + 700 + 80 + 0 > 4,000 + 600 + 90 + 9

OR

4,000 + 600 + 90 + 9
4,000 + 700 + 80 + 0
4,699 < 4,780

AND

I know my answer is correct because the number in the thousands place is the same in both numbers, but 700 is greater than 600.

OR other valid explanation

40

Two numbers are shown below.

4,699 and 4,780

Write the two numbers in expanded form, and then compare them using the >, <, or = symbol. Be sure to include what you know about place value in your answer.

Explain how you know your answer is correct.

$4{,}000 + 600 + 90 + 9 < 4{,}000 + 700 + 80 + 0$

I know my answer is correct because $4{,}000 = 4{,}000$ but $600 < 700$.

Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. Expanded forms are correctly written and correctly compared. The explanation that "4,000 = 4,000 but 600 < 700" is sufficient to demonstrate a thorough understanding. This response is complete and correct.

GUIDE PAPER 2

40

Two numbers are shown below.

4,699 and 4,780

Write the two numbers in expanded form, and then compare them using the >, <, or = symbol. Be sure to include what you know about place value in your answer. [2]

Explain how you know your answer is correct.

I compared both and the answer is 4,780 > 4,699

4,780 > 4,699

4,699 + 81 = 4,680

4,780
− 4,699
81

Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. Expanded forms are correctly written and compared, and a correct explanation is written. The incorrect equation 4,699 + 81 = 4,680 stated in work is considered inconsequential and does not detract from the demonstration of understanding. This response is complete and correct.

GUIDE PAPER 3

40

Two numbers are shown below.

4,699 and 4,780

Write the two numbers in expanded form, and then compare them using the >, <, or = symbol. Be sure to include what you know about place value in your answer.

Explain how you know your answer is correct.

4,000+600+90+9
second one 4,000+700+80 4,699 < 4,780
I know my answer is correct because if you look in the hundreds place 4,699 has 600 and 4,780 has 700 and 700 is larger than 600

Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The number 4,699 is identified as less than 4,780. Even though the explanation for the comparison does not begin with mentioning that the thousands digits are the same, the explanation does state to "look in the hundreds place...and 700 is larger than 600" and is sufficient to demonstrate a thorough understanding. This response is complete and correct.

GUIDE PAPER 4

40

Two numbers are shown below.

4,699 and 4,780

Write the two numbers in expanded form, and then compare them using the >, <, or = symbol. Be sure to include what you know about place value in your answer. [2]

Explain how you know your answer is correct.

Four thousand six hundred ninety-nine and Four thousand Seven hundred eighty. 4,699 < 4,780. The hundreds Place in 4,780 is greater than the hundreds place in 4,699.

Score Credit 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The explanation that "the hundreds place in 4,780 is greater than the hundreds place in 4,699" is valid. The number 4,699 is identified as less than 4,780; however, the numbers are not written in expanded form. This response correctly addresses only some elements of the task.

GUIDE PAPER 5

40

Two numbers are shown below.

4,699 and 4,780

Write the two numbers in expanded form, and then compare them using the >, <, or = symbol. Be sure to include what you know about place value in your answer.

Explain how you know your answer is correct.

4,000+600+90+9 < 4,000+700+10+8 I know my answer is correct because looking at my answer you can see that both of the numbers begin with 4,000 but not both have the same number in the hundredths place. Seeing that 700 is a larger number than 600 4,780 is greater than 4,699.

Score Credit 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The explanation involves the comparison of the thousands and hundreds place values, and is valid. The provided expanded forms are correctly compared; however, 4,000 + 700 + 10 + 8 is incorrect. This response correctly addresses only some elements of the task.

GUIDE PAPER 6

40

Two numbers are shown below.

4,699 and 4,780

Write the two numbers in expanded form, and then compare them using the >, <, or = symbol. Be sure to include what you know about place value in your answer. [2]

Explain how you know your answer is correct.

4000+700+80 < 4000+600+90+9 because the Hun dred is bigger

4.

Score Credit 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The comparison is incorrect and incomplete reasoning is provided. This response correctly addresses only some elements of the task.

GUIDE PAPER 7

40

Two numbers are shown below.

4,699 and 4,780

Write the two numbers in expanded form, and then compare them using the >, <, or = symbol. Be sure to include what you know about place value in your answer. [2]

Explain how you know your answer is correct.

4,780 is the bigger number

4,699 < 4,780

Score Credit 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Expanded forms are not written and no explanation for the comparison is given. Holistically, this response shows no overall understanding of the task.

40

Two numbers are shown below.

4,699 and 4,780

Write the two numbers in expanded form, and then compare them using the >, <, or = symbol. Be sure to include what you know about place value in your answer.

Explain how you know your answer is correct.

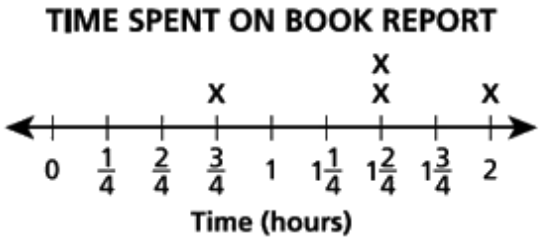
4,000 600 90 9 > 4,000 700 80 In place value you write number differnt

Score Credit 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Expanded forms are not correctly written as expressions. The comparison is incorrect, and the explanation is insufficient. Holistically, this response shows no overall understanding of the task.

41

The line plot below shows the amount of time Jamie spent working on his book report each day for four days.



What is the total amount of time, in hours, that Jamie spent working on his book report for those four days?

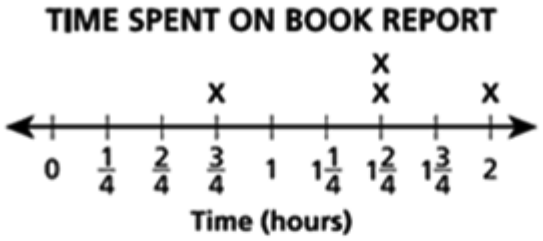
Show your work.

Answer _____ hours

EXEMPLARY RESPONSE

41

The line plot below shows the amount of time Jamie spent working on his book report each day for four days.



What is the total amount of time, in hours, that Jamie spent working on his book report for those four days?

Show your work.

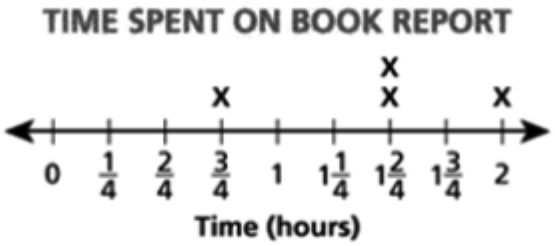
$3/4 + 1\,2/4 + 1\,2/4 + 2$
$= 3/4 + 6/4 + 6/4 + 8/4$
$= 23/4$
$= 5\,3/4$

OR other valid process

Answer $5\,3/4$ hours

41

The line plot below shows the amount of time Jamie spent working on his book report each day for four days.



What is the total amount of time, in hours, that Jamie spent working on his book report for those four days? [2]

Show your work.

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

1) Add the wholes

$2 + 2 + 1 = 4$

2) Add the fraction

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

3) Add 4 and $1\frac{3}{4}$

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

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

Score Credit 2 (out of 2 credits)

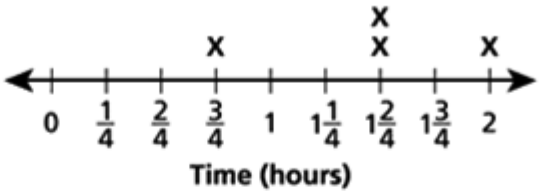
This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. A mathematically sound procedure of adding together the individual sums of the wholes and the fractions is used. A correct answer is provided. This response is complete and correct.

GUIDE PAPER 2

41

The line plot below shows the amount of time Jamie spent working on his book report each day for four days.

TIME SPENT ON BOOK REPORT



What is the total amount of time, in hours, that Jamie spent working on his book report for those four days? [2]

Show your work.

(like 1.5+1.5=3)

1st step) $\frac{1}{2} + \frac{1}{2} = 1$

2nd step

3+2=5

Final step:

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

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

Score Credit 2 (out of 2 credits)

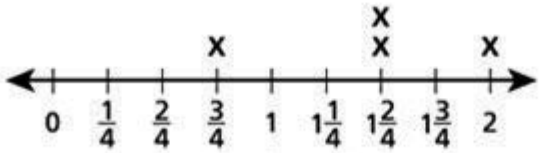
This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. A mathematically sound procedure is used, and a correct answer is provided. This response is complete and correct.

GUIDE PAPER 3

41

The line plot below shows the amount of time Jamie spent working on his book report each day for four days.

TIME SPENT ON BOOK REPORT



Time (hours)

What is the total amount of time, in hours, that Jamie spent working on his book report for those four days?

Show your work.

3/4 + (1 1/2 + 1 1/2) + 2 = 3/4 + (3 + 2)= 3/4 + 5 = 5 3/4

Answer 5 3/4 hours

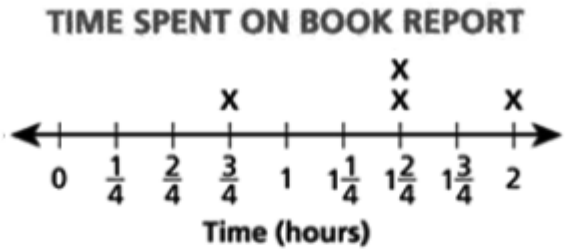
Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. A mathematically sound procedure is used, and a correct answer is provided. This response is complete and correct.

GUIDE PAPER 4

41

The line plot below shows the amount of time Jamie spent working on his book report each day for four days.



What is the total amount of time, in hours, that Jamie spent working on his book report for those four days? [2]

Show your work.

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

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

Answer $4\frac{3}{4}$ hours

Score Credit 1 (out of 2 credits)

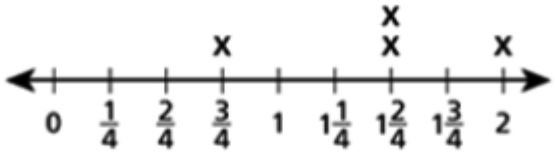
This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. A mathematically appropriate process is applied; however, a calculation error (1½ + 1½ = 2 ⅔ or 2) occurs, resulting in an incorrect solution. This response correctly addresses only some elements of the task.

GUIDE PAPER 5

41

The line plot below shows the amount of time Jamie spent working on his book report each day for four days.

TIME SPENT ON BOOK REPORT



Time (hours)

What is the total amount of time, in hours, that Jamie spent working on his book report for those four days? [2]

Show your work.

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

$1 + 1 + 2 = 4$

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

$4\frac{5}{4}$

Answer $4\frac{5}{4}$ hours

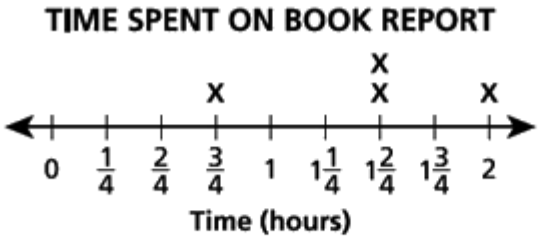
Score Credit 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. A mathematically sound process of adding the individual sums of the wholes and the fractions is used; however, a calculation error (¾ + ½ + ½ = ⅝) occurs, resulting in an incorrect solution. This response correctly addresses only some elements of the task.

GUIDE PAPER 6

41

The line plot below shows the amount of time Jamie spent working on his book report each day for four days.



What is the total amount of time, in hours, that Jamie spent working on his book report for those four days?

Show your work.

you do 3/4 + 1 1/2 + 2 = 5 3/4

Answer 5 3/4 hours

Score Credit 1 (out of 2 credits)

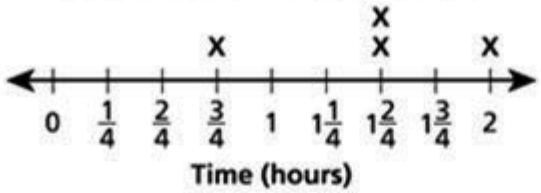
This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. This response contains the correct solution; however, an incorrect equation is written, and no additional work is shown on how the solution is obtained. The required work is incomplete. This response correctly addresses only some elements of the task.

GUIDE PAPER 7

41

The line plot below shows the amount of time Jamie spent working on his book report each day for four days.

TIME SPENT ON BOOK REPORT



What is the total amount of time, in hours, that Jamie spent working on his book report for those four days?

Show your work.

$$\begin{array}{r} 120 \\ +\ 45 \\ \hline 160 \end{array} \quad \begin{array}{r} 190 \\ +\ 160 \\ \hline 350 \end{array} \quad \begin{array}{r} 350 \\ +\ 160 \\ \hline 490 \end{array} \quad = 5\text{hours and } 45\text{min}$$

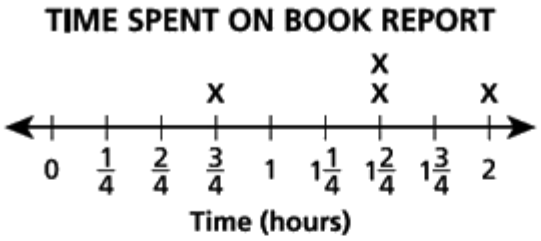
Answer 5hours and 45min hours

Score Credit 0 (out of 2 credits)

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

41

The line plot below shows the amount of time Jamie spent working on his book report each day for four days.



What is the total amount of time, in hours, that Jamie spent working on his book report for those four days?

Show your work.

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

Answer $5\frac{1}{4}$ hours

Score Credit 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. This response is incorrect, and, holistically, is insufficient to show any understanding.

42

Two expressions are shown below.

Expression A: $\frac{1}{4} \times 2$

Expression B: $\frac{1}{2} \times 5$

Which expression, A or B, has a value greater than 1 ? Be sure to include the value of each expression in your answer.

Explain how you know your answer is correct.

EXEMPLARY RESPONSE

42

Two expressions are shown below.

Expression A: $\frac{1}{4} \times 2$

Expression B: $\frac{1}{2} \times 5$

Which expression, A or B, has a value greater than 1 ? Be sure to include the value of each expression in your answer.

Explain how you know your answer is correct.

For Expression A, when I solve,
I get the value of $^2/_4$, which is equivalent to $^1/_2$ and less than 1.
When I solve Expression B, I get the value of $^5/_2$.
Since $^5/_2$ is equal to $2^1/_2$,
then Expression B is greater than 1.

OR

Expression B
$^1/_4 + {}^1/_4 = {}^2/_4 = {}^1/_2$ and $^1/_2$ is less than 1.
$^1/_2 + {}^1/_2 + {}^1/_2 + {}^1/_2 + {}^1/_2 = {}^5/_2$.
$^2/_2 = 1$ so $^5/_2$ is greater than 1.

OR other valid explanation

42

Two expressions are shown below.

Expression A: $\frac{1}{4} \times 2$

Expression B: $\frac{1}{2} \times 5$

Which expression, A or B, has a value greater than 1? Be sure to include the value of each expression in your answer.

Explain how you know your answer is correct.

$\frac{1}{2} \times 5$ has a total larger than 1. $\frac{1}{2} \times 5$ is equal to $\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}$ and that equals $2\frac{1}{2}$. And $\frac{1}{4} \times 2$ is equal to $\frac{1}{4}+\frac{1}{4}$ and that equals $\frac{2}{4}$. $1 < 2\frac{1}{2}$, $1 > \frac{2}{4}$.

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

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

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

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

Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. Both expressions are correctly evaluated and compared to 1. Expression B is chosen. This response is complete and correct.

GUIDE PAPER 2

42

Two expressions are shown below.

Expression A: $\frac{1}{4} \times \frac{2}{1}$ $\frac{2}{4}$

Expression B: $\frac{1}{2} \times 5$ $\frac{5}{2}$

Which expression, A or B, has a value greater than 1? Be sure to include the value of each expression in your answer.

Explain how you know your answer is correct.

B is greater than 1 because it is an in properor fraction and it goes over one

Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. Both expressions are correctly evaluated. Expression B is chosen. The explanation that B "is an in properor fraction and it goes over one" is sufficient to demonstrate understanding. This response is complete and correct.

GUIDE PAPER 3

42

Two expressions are shown below.

Expression A: $\frac{1}{4} \times 2$

Expression B: $\frac{1}{2} \times 5$

Which expression, A or B, has a value greater than 1 ? Be sure to include the value of each expression in your answer.

Explain how you know your answer is correct.

A: $\frac{1}{4} \times 2 = \frac{2}{4}$ B: $\frac{1}{2} \times 5 = \frac{5}{2} = 2\frac{1}{2}$

Letter B is greater than 1 because it has two ones and one half. But letter A dosen't have ones it only has two fourths.

Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. Both expressions are correctly evaluated and compared to 1. Expression B is chosen. This response is complete and correct.

GUIDE PAPER 4

42

Two expressions are shown below.

Expression A: $\frac{1}{4} \times 2$

Expression B: $\frac{1}{2} \times 5$

Which expression, A or B, has a value greater than 1 ? Be sure to include the value of each expression in your answer.

Explain how you know your answer is correct.

1/4 × 2 = 2/4
1/2 × 5 = 5/2
Experession B

Score Credit 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. Expression B is chosen. Both expressions are correctly evaluated; however, the comparison to 1 is incomplete. This response correctly addresses only some elements of the task.

GUIDE PAPER 5

42

Two expressions are shown below.

Expression A: $\frac{1}{4} \times 2$

Expression B: $\frac{1}{2} \times 5$

Which expression, A or B, has a value greater than 1? Be sure to include the value of each expression in your answer.

Explain how you know your answer is correct.

Expression B because ~~$\frac{1}{4}$~~ $\frac{1}{2} \times 2$ is not greater than one, while $\frac{1}{2} \times 5$ is greater because it is a mixed number of $2\frac{1}{2}$.

Score Credit 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. Expression B is chosen; however, only B is evaluated. This response contains the correct solution, but the required work is incomplete.

GUIDE PAPER 6

42

Two expressions are shown below.

Expression A: $\frac{1}{4} \times 2$

Expression B: $\frac{1}{2} \times 5$

Which expression, A or B, has a value greater than 1 ? Be sure to include the value of each expression in your answer.

Explain how you know your answer is correct.

$\frac{1}{4} \times 2 = \frac{3}{4}$ $\frac{1}{2} \times 5 = 2\frac{1}{2}$ b is greater then 1 beacause if you do $\frac{1}{2} \times 5$ its $2\frac{1}{2}$ with it is greater then 1 beacause 2 is more then1

Score Credit 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. Both expressions are evaluated; however, a calculation error (¼ × 2 = ¾) occurs when evaluating A. Expression B is correctly chosen based on work. This response correctly addresses only some elements of the task.

GUIDE PAPER 7

42

Two expressions are shown below.

Expression A: $\frac{1}{4} \times 2$

Expression B: $\frac{1}{2} \times 5$

Which expression, A or B, has a value greater than 1 ? Be sure to include the value of each expression in your answer.

Explain how you know your answer is correct.

expression B has a greater value because $\frac{1}{2}$ is greater than $\frac{1}{4}$ and its $\times$ 5 not $\times$ 2.

Score Credit 0 (out of 2 credits)

This response is insufficient to demonstrate even a limited understanding of the mathematical concepts in the task. A valid claim that expression B is larger in value is made; however, neither expression is evaluated or compared to 1. Holistically, this response shows no overall understanding of the task.

42

Two expressions are shown below.

Expression A: $\frac{1}{4} \times 2$

Expression B: $\frac{1}{2} \times 5$

Which expression, A or B, has a value greater than 1 ? Be sure to include the value of each expression in your answer.

Explain how you know your answer is correct.

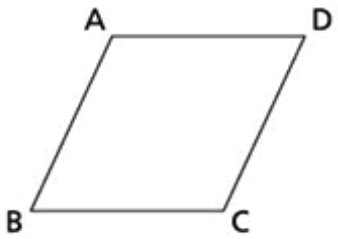
B is greater then A because if you tims it you will get 7 and for A its 6

Score Credit 0 (out of 2 credits)

This response is insufficient to demonstrate even a limited understanding of the mathematical concepts in the task. This response is incorrect, and, holistically, is insufficient to show any understanding.

43

A rhombus is shown below.



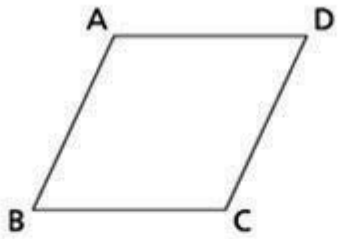
Use what you know about parallel, perpendicular, or intersecting sides to describe one pair of sides in the rhombus shown.

Explain how you know your answer is correct.

EXEMPLARY RESPONSE

43

A rhombus is shown below.



Use what you know about parallel, perpendicular, or intersecting sides to describe one pair of sides in the rhombus shown.

Explain how you know your answer is correct.

Side AD is parallel to side BC
OR
Side AB is parallel to side DC

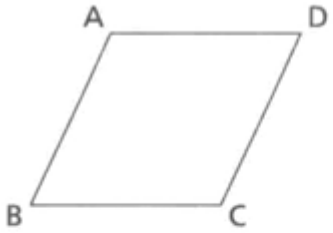
AND

because if the two sides are extended, the lines formed would not intersect.

OR other valid explanation

43

A rhombus is shown below.



Use what you know about parallel, perpendicular, or intersecting sides to describe one pair of sides in the rhombus shown.

Explain how you know your answer is correct.

$\overline{AD}$ is parallel to $\overline{BC}$ because when both lines keep going they will never touch.

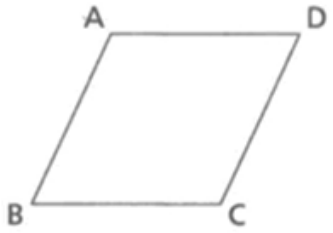
Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. A pair of parallel sides is identified. The explanation that "when both lines keep going they will never touch" shows a thorough understanding. This response is complete and correct.

GUIDE PAPER 2

43

A rhombus is shown below.



Use what you know about parallel, perpendicular, or intersecting sides to describe one pair of sides in the rhombus shown.

Explain how you know your answer is correct.

Lines AB and DC are parallel they could go on and on but never meet. Also lines AD and BC are parallel they could go on and on and never meet.

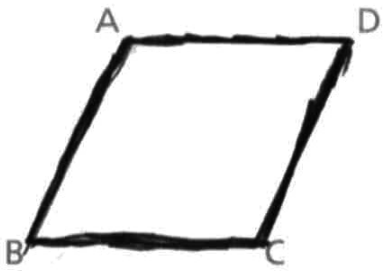
Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. Both pairs of parallel sides are identified. The explanation that "they could go on and on and never meet" shows a thorough understanding. This response is complete and correct.

GUIDE PAPER 3

43

A rhombus is shown below.



Use what you know about parallel, perpendicular, or intersecting sides to describe one pair of sides in the rhombus shown.

Explain how you know your answer is correct.

Parallel lines go on and on with out crossing so (A to D) and (B to C)

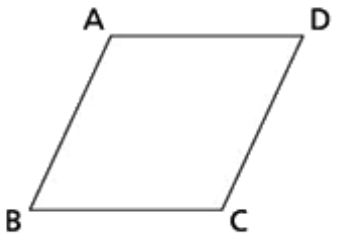
Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. A pair of parallel sides is referenced (A to D and B to C), although not properly identified using segment notation. The explanation that parallel lines "go on and on without crossing" shows a thorough understanding. This response is sufficient to show a thorough understanding.

GUIDE PAPER 4

43

A rhombus is shown below.



Use what you know about parallel, perpendicular, or intersecting sides to describe one pair of sides in the rhombus shown.

Explain how you know your answer is correct.

I think the rhombus shown is also a sqaure because side A to B and side D to C are paralel.

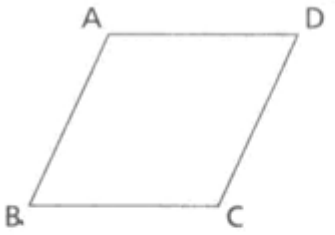
Score Credit 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. A pair of parallel sides is identified. However, no explanation for the parallel classification is provided. This response correctly addresses only some elements of the task.

GUIDE PAPER 5

43

A rhombus is shown below.



Use what you know about parallel, perpendicular, or intersecting sides to describe one pair of sides in the rhombus shown.

Explain how you know your answer is correct.

This rhombus is parralle/ because lines A and C don't touch and lines B and D don't touch ethier.

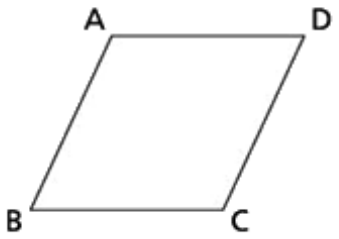
Score Credit 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. Two pairs of parallel sides are referenced, although not clearly identified using line/segment notation. The explanation that they "don't touch" is incomplete. This response correctly addresses only some elements of the task.

GUIDE PAPER 6

43

A rhombus is shown below.



Use what you know about parallel, perpendicular, or intersecting sides to describe one pair of sides in the rhombus shown.

Explain how you know your answer is correct.

The type sides on the rhombus shown has 2 sets of parallel sides and 2 sets of intersecting sides.

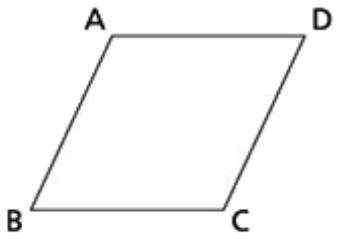
Score Credit 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. Correct references are made to the 2 sets of parallel sides, but states there are only 2 sets of intersecting sides (there are 4), and no sides in any of these references are identified. No further explanation of parallel or intersecting is given. The explanation is incomplete. This response correctly addresses only some elements of the task.

GUIDE PAPER 7

43

A rhombus is shown below.



Use what you know about parallel, perpendicular, or intersecting sides to describe one pair of sides in the rhombus shown.

Explain how you know your answer is correct.

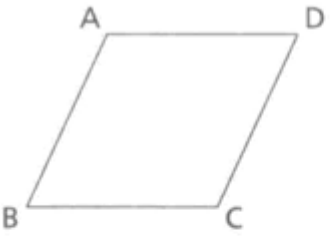
This rhombus have only one parallel side. I know this because a parallel side is both side pointing to one direction

Score Credit 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. This response is incorrect, and, holistically, is insufficient to show any understanding.

43

A rhombus is shown below.



Use what you know about parallel, perpendicular, or intersecting sides to describe one pair of sides in the rhombus shown.

Explain how you know your answer is correct.

AB and DC are perpendicular, because they slant.

Score Credit 0 (out of 2 credits)

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

44

Chairs have been set up for an event. There are 11 rows of chairs with 12 chairs in each row. When the event is over, the chairs are put away on chair racks. If each chair rack holds exactly 9 chairs, what is the **fewest** number of chair racks needed to hold all of the chairs?

Explain how you know your answer is correct.

EXEMPLARY RESPONSE

44

Chairs have been set up for an event. There are 11 rows of chairs with 12 chairs in each row. When the event is over, the chairs are put away on chair racks. If each chair rack holds exactly 9 chairs, what is the **fewest** number of chair racks needed to hold all of the chairs?

Explain how you know your answer is correct.

15

11 rows of chairs with 12 chairs in each row is 11 × 12, which is equal to 132 chairs.
Each chair rack holds 9 chairs,
so 132 divided by 9 is equal to 14 with a remainder of 6.
The fewest number of chair racks needed is 15 chair racks.

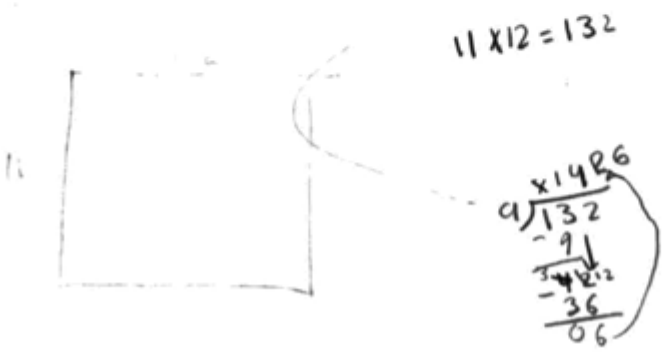
OR other valid process

44

Chairs have been set up for an event. There are 11 rows of chairs with 12 chairs in each row. When the event is over, the chairs are put away on chair racks. If each chair rack holds exactly 9 chairs, what is the **fewest** number of chair racks needed to hold all of the chairs?

Explain how you know your answer is correct.

They need 15 chair racks. 6 chairs will go on one of the racks. 11x12=132.
132÷9=14R6



Score Credit 3 (out of 3 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The total number of chairs is calculated, then divided by the number of chairs per rack, and the remainder of 6 chairs is correctly interpreted. The correct answer of 15 racks is provided. This response is complete and correct.

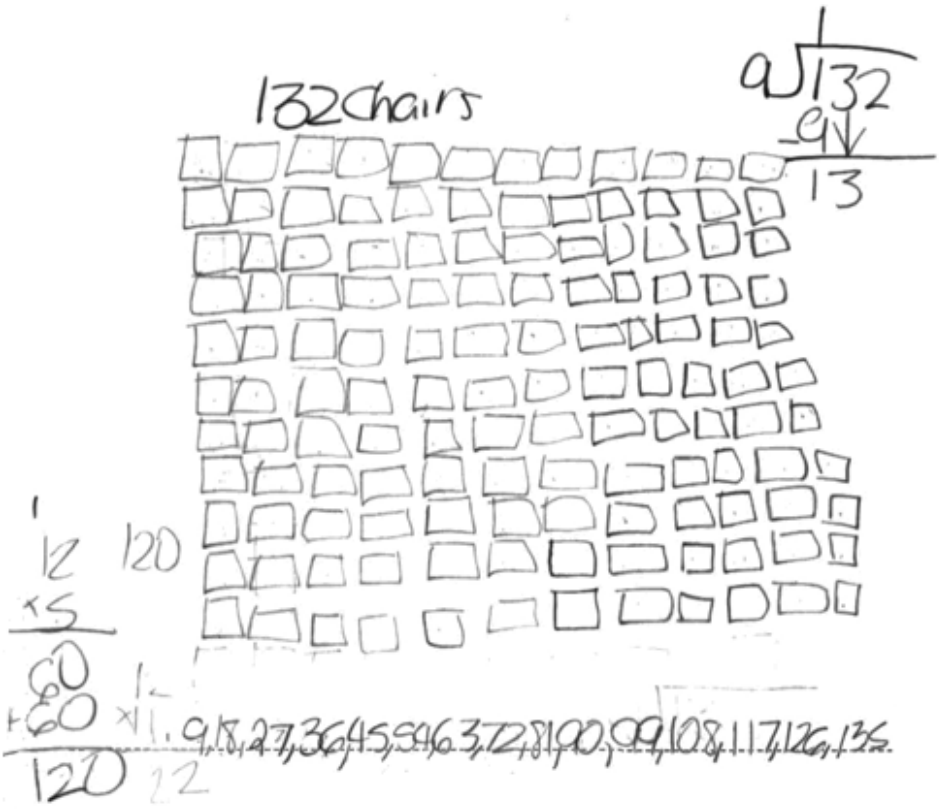
GUIDE PAPER 2

44

Chairs have been set up for an event. There are 11 rows of chairs with 12 chairs in each row. When the event is over, the chairs are put away on chair racks. If each chair rack holds exactly 9 chairs, what is the **fewest** number of chair racks needed to hold all of the chairs?

Explain how you know your answer is correct.

Is because there are not exacly 132 when you divid so you had to do 15 you couldn't stop at 14 chair racks



Score Credit 3 (out of 3 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The total number of chairs is counted by drawing a picture and repeat addition is used to determine the number of racks needed. The remainder is correctly interpreted with "you had to do 15 you couldn't stop at 14 chair racks" and the correct answer is provided. This response contains sufficient work to demonstrate a thorough understanding.

GUIDE PAPER 3

44

Chairs have been set up for an event. There are 11 rows of chairs with 12 chairs in each row. When the event is over, the chairs are put away on chair racks. If each chair rack holds exactly 9 chairs, what is the **fewest** number of chair racks needed to hold all of the chairs?

Explain how you know your answer is correct.

i know my awnser is correct because 11 × 12=132 then 132 ÷ 9 chairs per rack=14 R6 but, we can't just THROW 6 chairs away so we need 15 chair racks in all.

Score Credit 3 (out of 3 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The total number of chairs is calculated, then divided by the number of chairs per rack, and the remainder of 6 chairs is correctly interpreted. The correct answer of 15 racks is provided. This response is complete and correct.

GUIDE PAPER 4

44

Chairs have been set up for an event. There are 11 rows of chairs with 12 chairs in each row. When the event is over, the chairs are put away on chair racks. If each chair rack holds exactly 9 chairs, what is the **fewest** number of chair racks needed to hold all of the chairs?

Explain how you know your answer is correct.

they will need 15 chair racks. I know this is correct because $15 \times 9 = 135$ and 135 is just 3 away from 132 so it couldn't be 14.

Score Credit 2 (out of 3 credits)

This response demonstrates a partial understanding of the mathematical concepts and procedures in the task. Although the correct answer of 15 chair racks is determined by comparing 132 to 135, the work needed to explain why 14 chair racks would not work is incomplete. This response appropriately addresses most, but not all, aspects of the task.

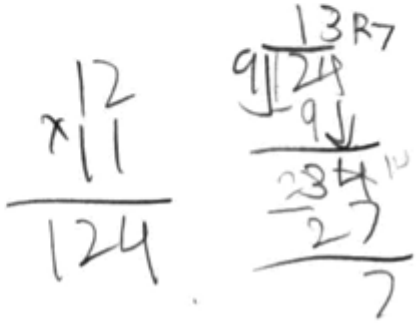
GUIDE PAPER 5

44

Chairs have been set up for an event. There are 11 rows of chairs with 12 chairs in each row. When the event is over, the chairs are put away on chair racks. If each chair rack holds exactly 9 chairs, what is the **fewest** number of chair racks needed to hold all of the chairs?

Explain how you know your answer is correct.

14 racks are the fewest numer needed.
I know because 124 ÷ 9 = 13 R7.



Score Credit 2 (out of 3 credits)

This response demonstrates a partial understanding of the mathematical concepts and procedures in the task. A calculation error ($12 \times 11 = 124$) occurs when computing the total number of chairs. The rest of the work is carried out correctly. The number of chairs is divided by the number of chairs per rack and the remainder is correctly interpreted. Based on work shown, an incorrect answer of 14 racks is provided. This response contains an incorrect solution but provides sound procedures.

GUIDE PAPER 6

44

Chairs have been set up for an event. There are 11 rows of chairs with 12 chairs in each row. When the event is over, the chairs are put away on chair racks. If each chair rack holds exactly 9 chairs, what is the **fewest** number of chair racks needed to hold all of the chairs?

Explain how you know your answer is correct.

14 because 14 x 9 equals 126 and if you do 15x9 it is higher than 132.

11
x12
22
+110
132

9x9=81
10x9=90
11x9=99
12x9=108
13x9=117
14x9=126
15x9=135
16x9=

Score Credit 2 (out of 3 credits)

This response demonstrates a partial understanding of the mathematical concepts and procedures in the task. Multiplication of chair racks by number of chairs per rack is performed correctly. Multiples of 9 are used to determine the number of racks needed; however, the extra 6 chairs are not correctly interpreted. An incorrect response of 14 is provided. This response reflects some misunderstanding of the underlying mathematical concepts and procedures.

GUIDE PAPER 7

44

Chairs have been set up for an event. There are 11 rows of chairs with 12 chairs in each row. When the event is over, the chairs are put away on chair racks. If each chair rack holds exactly 9 chairs, what is the **fewest** number of chair racks needed to hold all of the chairs?

Explain how you know your answer is correct.

15 chair racks. 11 × 12 = 132. 132 ÷ 9 = 15r6 so the least number of chair racks is 15

Score Credit 1 (out of 3 credits)

This response demonstrates a limited understanding of the mathematical concepts and procedures in this task. The total number of chairs is correctly calculated; however, a calculation error (132 ÷ 9 = 15r6) occurs in the division when computing the number of racks. Although a correct response of 15 chair racks is provided, the remainder is not correctly interpreted based on work provided. This response addresses some elements of the task correctly but exhibits multiple flaws related to misunderstanding of important aspects of the task.

44

Chairs have been set up for an event. There are 11 rows of chairs with 12 chairs in each row. When the event is over, the chairs are put away on chair racks. If each chair rack holds exactly 9 chairs, what is the **fewest** number of chair racks needed to hold all of the chairs?

Explain how you know your answer is correct.

14 because allthe chairs together was 132 the i have to do 132 ÷ 9 and the answer is 14.

Score Credit 1 (out of 3 credits)

This response demonstrates a limited understanding of the mathematical concepts and procedures in this task. The total number of chairs is divided by the number of chairs per rack; however, the work shown is incomplete. The remainder is not addressed in the work and an incorrect response of 14 is provided. This response correctly addresses some elements of the task but provides reasoning that is incomplete.

GUIDE PAPER 9

44

Chairs have been set up for an event. There are 11 rows of chairs with 12 chairs in each row. When the event is over, the chairs are put away on chair racks. If each chair rack holds exactly 9 chairs, what is the **fewest** number of chair racks needed to hold all of the chairs?

Explain how you know your answer is correct.

$12 \times 11 = 112$ $112 \div 9 = 11$ r3 they need 12 chair racks

Score Credit 1 (out of 3 credits)

This response demonstrates a limited understanding of the mathematical concepts and procedures in this task. An attempt is made to calculate the number of chairs and divide by the number of chairs per rack. The remainder obtained is correctly interpreted; however, calculation errors occur in both multiplication ($11 \times 12 = 112$) and division ($112 \div 9 = 11$r3). This response addresses some elements of the task, but exhibits multiple flaws related to misunderstanding of important aspects of the task.

GUIDE PAPER 10

44

Chairs have been set up for an event. There are 11 rows of chairs with 12 chairs in each row. When the event is over, the chairs are put away on chair racks. If each chair rack holds exactly 9 chairs, what is the **fewest** number of chair racks needed to hold all of the chairs?

Explain how you know your answer is correct.

$11 \times 12 = 112$

$12 \times 9 = 118$

$118 - 112 = 6$

Score Credit 0 (out of 3 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts and procedures in the task. This response is incorrect, and, holistically, is insufficient to show any understanding.

44

Chairs have been set up for an event. There are 11 rows of chairs with 12 chairs in each row. When the event is over, the chairs are put away on chair racks. If each chair rack holds exactly 9 chairs, what is the **fewest** number of chair racks needed to hold all of the chairs?

Explain how you know your answer is correct.

11 times 12 = 12 so i would take 2 racks.

Score Credit 0 (out of 3 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts and procedures in the task. This response is incorrect, and, holistically, is insufficient to show any understanding.