Nevada Ready!

Nevada Instructional Materials

for the

Nevada Academic Content Standards for Mathematics

Grade 4

TEACHER EDITION

Scoring Support Materials

Grade 4 Mathematics

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Introduction

This document represents the Phase III release of Nevada Instructional Materials. These released materials were developed in collaboration with Nevada educators, the Nevada Department of Education, and WestEd (a nonprofit research development and service agency).

These materials are intended for use in various guided instructional activities to support deep understanding of the Nevada Academic Content Standards (NVACS) for English Language Arts and mathematics based on Common Core. The Nevada Instructional Materials provide educators opportunities to investigate and explore the standards and tasks that are aligned to the standards. The Nevada educators involved in the development of these materials also developed "Teacher Tips" to assist in using these materials as an instructional resource. The Nevada Instructional Materials also provide educators opportunities to investigate and explore the standards and tasks that are aligned to the standards.

While these materials can provide students with practice in responding to a variety of assessment items, it is more important that they are used to help students deepen their understanding of the expectations embedded in the standards. If these instructional materials are used solely as an assessment practice activity, we highly recommend that educators go over each item with their students and evaluate each answer choice so that students can better understand the knowledge required to successfully complete each task.

Through rich classroom discussion around each item and the various answer choices or potential responses, educators can actively engage students in critical thinking, reasoning, and application of knowledge and skills, helping to ensure all students are ready for success in the 21st century.

Item Level Data

Item Number	NVACS*	DOK	Answers
1	4.OA.A1	1	A
2	4.OA.A3	2	-------
3	4.OA.A2	2	-------
4	4.OA.A3	3	-------
5	4.OA.B4	1	C
6	4.OA.C5	2	A, D
7	4.OA.C5	2	-------
8	4.NBT.A2	1	-------
9	4.NBT.A3	1	-------
10	4.NBT.A1	1	B
11	4.NBT.B4	1	B, C
12	4.NBT.B5	1	A
13	4.NBT.B6	1	-------
14	4.NBT.B5	2	-------
15	4.NF.A1	1	B, D, E
16	4.NF.A2	2	B
17	4.NF.A2	3	-------
18	4.NF.A2	2	A, C, D
19	4.NF.B3b	1	B, E, F
20	4.NF.B3c	1	-------
21	4.NF.B3d	1	A, D
22	4.NF.B3d	2	-------
23	4.NF.B4a	1	D
24	4.NF.B4b	2	-------
25	4.NF.B4c	2	-------
26	4.NF.B4c	3	-------
27	4.NF.C5	1	-------
28	4.NF.C6	1	C
29	4.NF.C6	1	-------
30	4.NF.C7	2	-------
31	4.MD.A1	1	-------
32	4.MD.A2	2	D
33	4.MD.A2	3	-------
34	4.MD.A3	2	A, B, D, F
35	4.MD.B4	2	-------
36	4.MD.C5a	1	C
37	4.MD.C7	1	B, C, E
38	4.MD.C6	2	-------
39	4.G.A1	1	B, E, H
40	4.G.A1	2	-------
41	4.G.A2	1	D
42	4.G.A2	1	B, F
43	4.G.A2	3	-------
44	4.G.A3	1	A, C, D, E
45	4.G.A3	2	-------

*Nevada Academic Content Standards

Detailed objectives for Content Standards and Depth of Knowledge (DOK) descriptions can be found on the Nevada Department of Education web site.

Scoring Guides and Student Response Examples by Score Point

Grade 4 Mathematics

Nevada Instructional Materials Phase III
Grade 4 Mathematics
NVACS: M_4.OA.A1

1 A statement is shown below.

The number 48 is 6 times as many as 8 .

Which equation is represented by the statement?

A $6 \times 8 = 48$
B $6 + 8 = 48$
C $48 - 6 = 8$
D $48 \times 6 = 8$

Scoring Notes:

Rationale A: correct
Rationale B: shows 6 more than 8, which is not 48
Rationale C: shows 6 less than 48, which is not 8
Rationale D: shows 48 times 6, which is not 8

Nevada Instructional Materials Phase III
Grade 4 Mathematics
NVACS: M_4.OA.A3

2 Lonnie buys 8 cases of bottled water. Each case contains 24 bottles of water. Lonnie puts all but 15 of the bottles of water into coolers. How many bottles of water does Lonnie put into coolers? Write the answer in the blank below.

_____ bottles of water

Scoring Notes:

177 (bottles of water)

3 All of the baseball hats at a store went on sale.

- The number of hats sold on Thursday was 12 .
- The number of hats sold on Friday was 2 times as great as the number of hats sold on Thursday.
- The number of hats sold on Saturday was 3 times as great as the number of hats sold on Friday.

Select true or false for each statement below about the numbers of hats sold on different days.

A The number of hats sold on Saturday is 6 times as great as the number of hats sold on Thursday.
☐ True ☐ False

B The number of hats sold on Friday is 8 times as great as the number of hats sold on Saturday.
☐ True ☐ False

C The number of hats sold on Friday is 24 .
☐ True ☐ False

D The number of hats sold on Saturday is 96 .
☐ True ☐ False

E The total number of hats sold on Friday, Saturday, and Sunday is 108 .
☐ True ☐ False

Scoring Notes:

True: A, C, E
False: B, D
Rationale B: multiplies 12×2 and sees that 24 is 8 times as great as 3
Rationale D: multiplies 12×6 but then adds 12×2

4 A roller skating rink rents pairs of roller skates to its visitors.

- The rink has 36 visitors on Friday.
- 11 visitors are **not** roller skating.

A Each roller skate in a pair has 4 wheels. What is the total number of wheels on the roller skates of the visitors who are roller skating? Show your work or explain your thinking.

The roller skating rink keeps 300 pairs of roller skates to rent to visitors.

- On Saturday morning, 42 pairs of roller skates are rented for the entire day.
- On Saturday afternoon, 4 groups visit the roller skating rink.
- Each group has 16 children who need to rent pairs of roller skates.

B After all of the children have rented their roller skates, how many pairs of roller skates does the roller skating rink have remaining to rent? Show your work or explain your thinking.

Write your response on the grid on the next page.

Scoring Notes:

Score	Description
3	Student scores 3 points.
2	Student scores 2–2.5 points.
1	Student scores 0.5–1.5 points.
0	Student's response provides insufficient evidence of appropriate skills or knowledge to successfully accomplish the task.
Blank	No student response.

Score Points

Part A:	score 1.5 points	correct answer with correct and complete work or explanation
	OR	
	score 1.0 point	correct answer with partially correct work or incomplete explanation **OR** incorrect answer due to a calculation error (work must be shown)
	OR	
	score 0.5 point	correct answer with no work or explanation **OR** partially correct or incomplete explanation **OR** some correct procedure
Part B:	score 1.5 points	correct answer with correct and complete work or explanation
	OR	
	score 1.0 point	correct answer with partially correct work or incomplete explanation **OR** incorrect answer due to a calculation error (work must be shown) **OR** incorrect answer due to correct but incomplete procedure (work or explanation must be shown/included)
	OR	
	score 0.5 point	correct answer with no work or explanation **OR** partially correct or incomplete explanation **OR** some correct procedure
	OR	
	score 0.5 point	correct answer with no work or explanation **OR** partially correct or incomplete explanation **OR** some correct procedure

Correct Answers

Part A: 200 (wheels)

$36 - 11 = 25$

$25 \times 2 \times 4 = 200$

or equivalent work

OR

Sample Explanation:
When 11 of the 36 people are not roller skating, then 25 people will be roller skating. Each skate has 4 wheels and each person has 2 skates, so each person's skates have a total of 8 wheels. $8 \times 25 = 200$. There are a total of 200 wheels.

Part B: 194 (pairs)

$300 - 42 = 258$

$4 \times 16 = 64$

$258 - 64 = 194$

or equivalent work

OR

Sample Explanation:
Subtract 42 pairs of roller skates from 300 pairs of skates to find out how many pairs of skates are still to be rented. There are 258 pairs of skates that can be rented. There are 4 groups of 16 children, so multiply 16 by 4 to find out how many roller skates are now rented, $16 \times 4 = 64$. Subtract 64 from the number of skates left to rent, $258 - 64 = 194$. The roller rink has 194 pairs of skates that can be rented.

Instructional Materials Question 4

A

$$\begin{array}{r} 36 \\ -11 \\ \hline 25 \end{array}$$

$$\begin{array}{r} {}^{2}25 \\ \times\ 4 \\ \hline 100 \end{array}$$

$$\begin{array}{r} 100 \\ \times\ 2 \\ \hline 200 \end{array}$$

The total number of wheels is 200. I know this because I used multiplication and subtraction. First, I subtracted 36 and 11 to get 25 visitors. Then, I multiplied 25 and 4 to get a product of 100. I know people have two feet so I multiplied 100 and 2 to get a product of 200.

B

$$\begin{array}{r} {}^{2}{}^{9}\cancel{3}\cancel{0}0 \\ -\ 42 \\ \hline 258 \end{array}$$

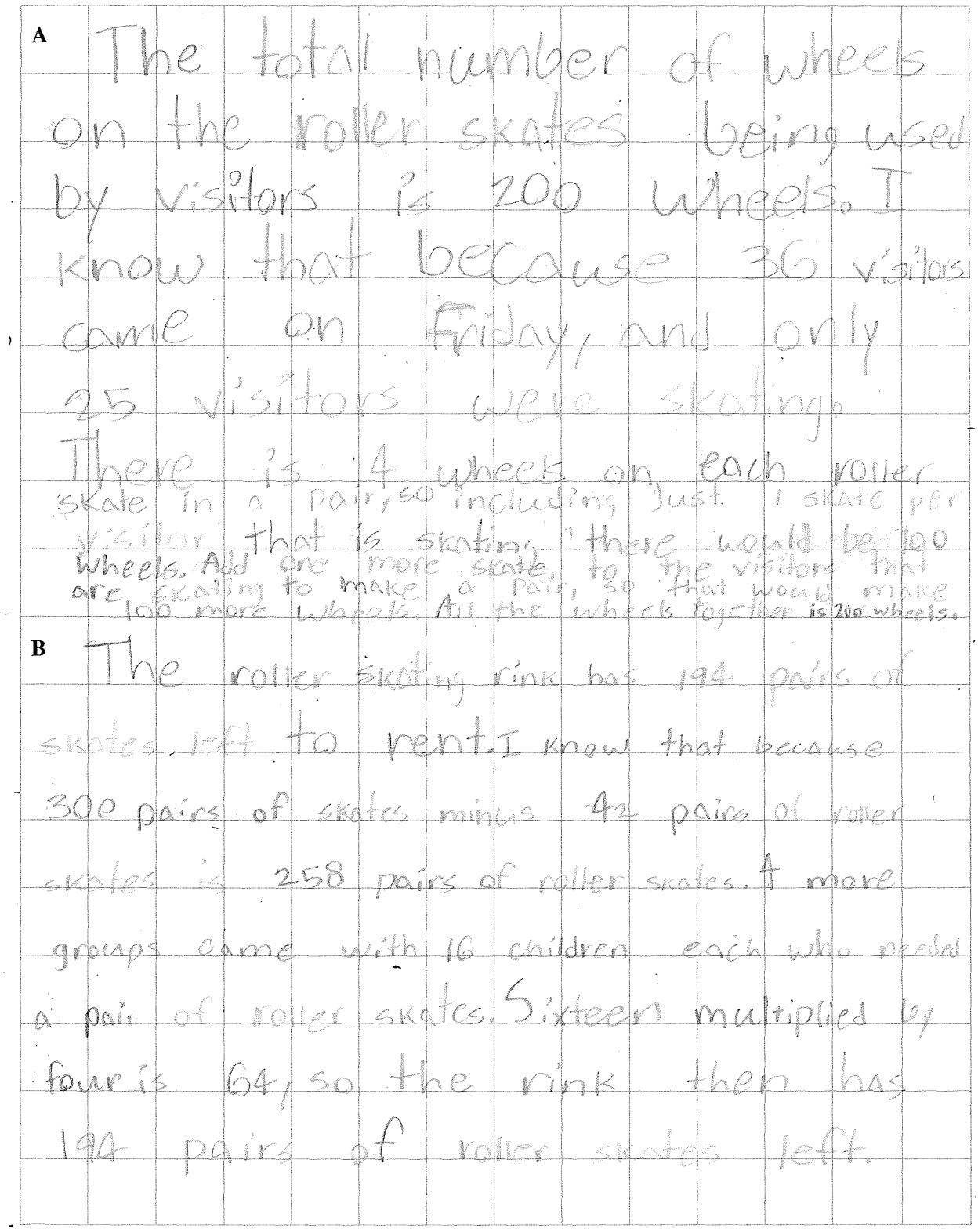
$$\begin{array}{r} {}^{2}16 \\ \times\ 4 \\ \hline 64 \end{array}$$

$$\begin{array}{r} {}^{1}258 \\ -\ 64 \\ \hline 194 \end{array}$$

There are 194 remaining roller skates. I know this because I used subtraction and multiplication. First I subtracted 300 and 42 to get 258. Then I multiplied 16 and 4 to get a product of 64. I subtracted 258 and 64 to get 194 remaining roller skates.

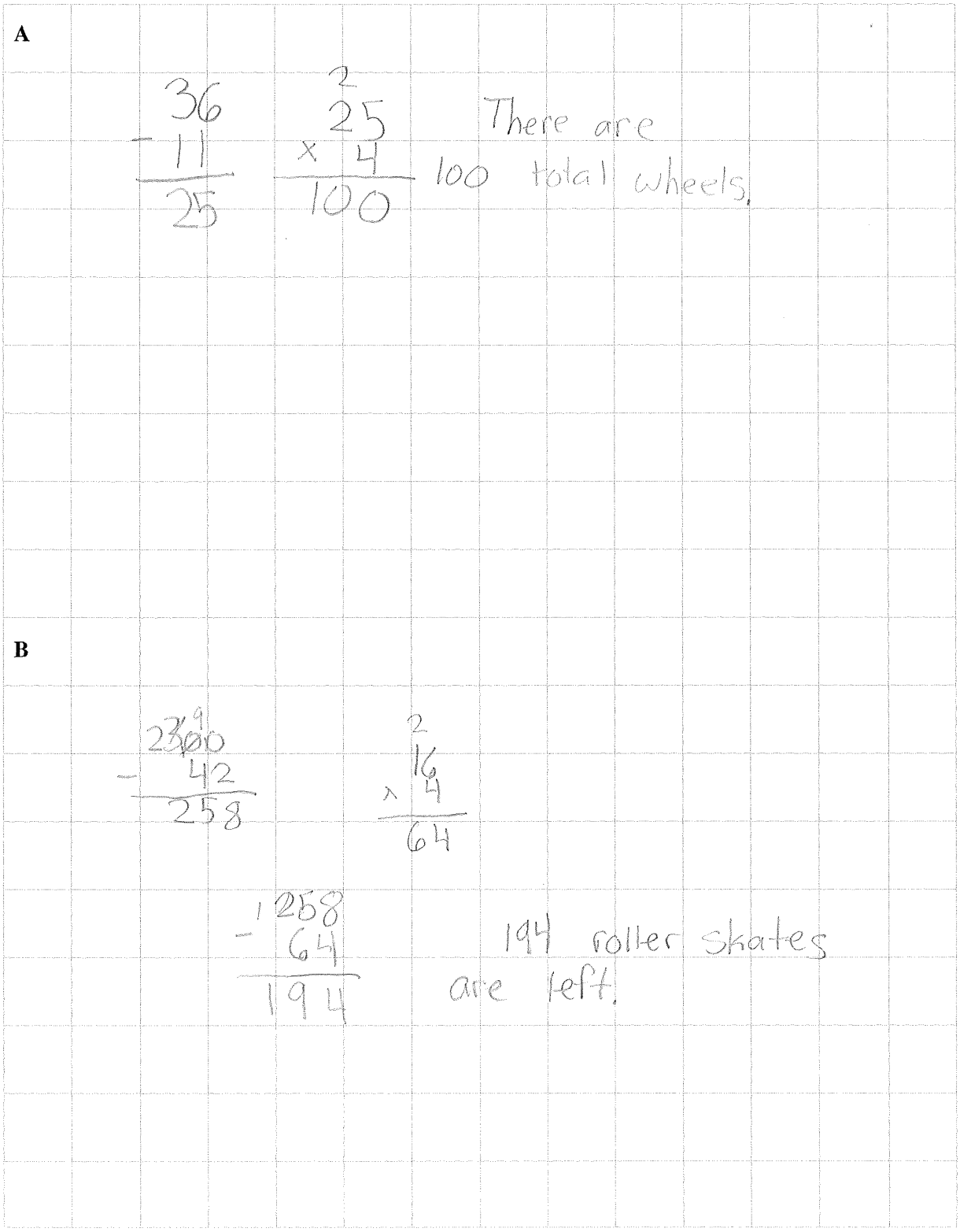
Score Point: 3
The response to Part A includes the correct answer with correct and complete explanation (1.5).
The response to Part B includes the correct answer with correct and complete explanation (1.5).

Instructional Materials Question 4



Score Point: 3
The response to Part A includes the correct answer with correct and complete explanation (1.5).
The response to Part B includes the correct answer with correct and complete explanation (1.5).

Instructional Materials Question 4



Score Point: 2
The response to Part A includes some correct procedure (0.5). The response to Part B includes the correct answer with correct and complete work (1.5).

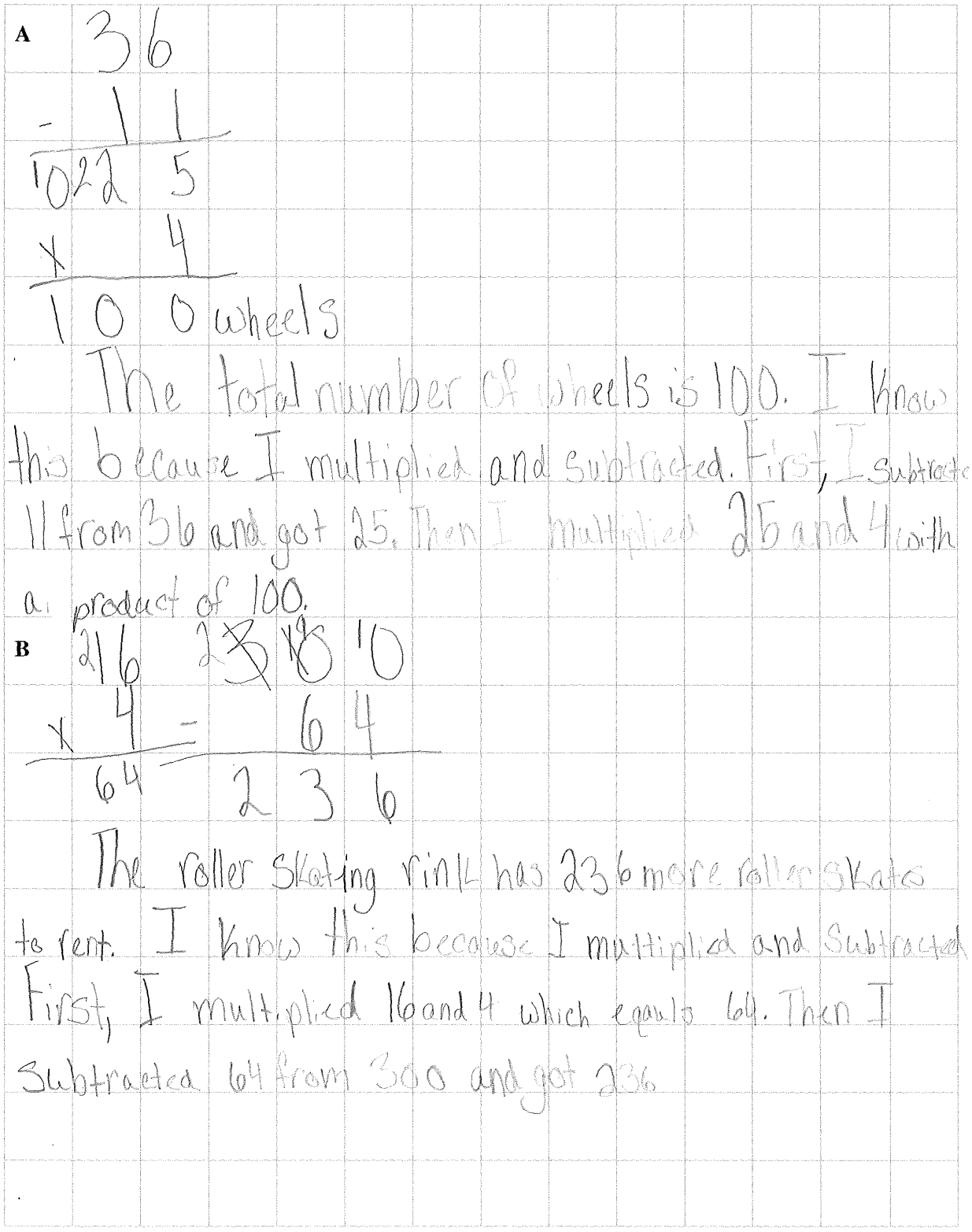
Instructional Materials Question 4

A If there are there are 36 visitors, and 11 are not skating ath the rollar skating rink, and there are 8 wheels in a pair of skates, there are 200 wheels on the rollar rink because 36 minus 11 equals 25, and 25 multiplied by 8 equals 200.

B After all the children rented their roller skates, there are still 236 that can be rented from the skating rink because if 4 groups visit, and 16 children from each group rent a pair, 64 pairs are rented in all, and the skating rink has a total of 300 pairs of roller skates, and 300 minus 64 is 236.

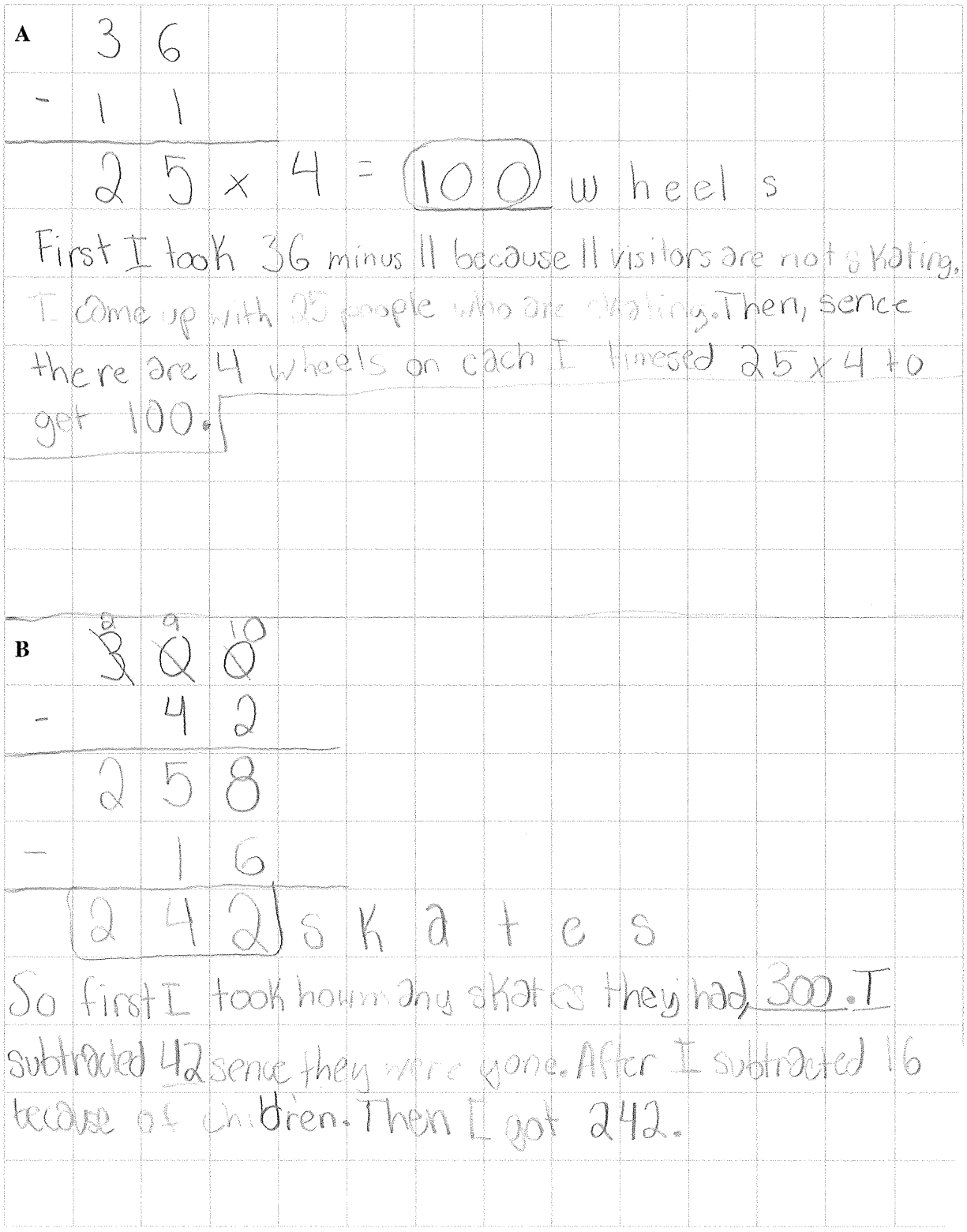
Score Point: 2
The response to Part A includes the correct answer with correct and complete explanation (1.5).
The response to Part B includes an incorrect answer due to correct but incomplete procedure (explanation included) (1.0).

Instructional Materials Question 4



Score Point: 1
The response to Part A includes some correct procedure (0.5). The response to Part B includes an incorrect answer due to correct but incomplete procedure (explanation included) (1.0).

Instructional Materials Question 4



Score Point: 1
The response to Part A includes some correct procedure (0.5). The response to Part B includes some correct procedure (0.5).

5 In which list are **all** the numbers prime?

A 5 45 85
B 6 38 92
C 17 31 83
D 19 63 97

Scoring Notes:

Rationale A: all end in 5; only 5 is prime
Rationale B: confused prime and composite
Rationale C: correct
Rationale D: 63 is composite

6 A pattern of figures that uses squares is described below.

- The first figure in the pattern has 2 squares.
- The next figure in the pattern is always found by adding 3 squares to the number of squares in the figure before it.

Which of these make the statement below about the number of squares in each figure in the pattern true? Select **all** that apply.

The number of squares in each figure in the pattern _____.

- ☐ **A** can be odd or even
- ☐ **B** is always odd
- ☐ **C** is always even
- ☐ **D** can be prime or composite
- ☐ **E** is a multiple of 2
- ☐ **F** is a multiple of 3
- ☐ **G** can be evenly divided by 5

Scoring Notes:

Correct answers: A, D
Rationale B: number added is odd
Rationale C: first term is even
Rationale E: true for every other term
Rationale F: misinterprets impact of number added
Rationale G: true for some terms, but not all

7 Allie created a number pattern starting with the number 13 and following the rule "add 5 ."

Write the first six numbers in Allie's pattern in the spaces below.

_____ _____ _____ _____ _____ _____

Explain why the digit in the ones place of each number in Allie's pattern can be only one of two different digits.

Write your response on the grid below.

Scoring Notes:

For this item, a full-credit response (2 points) includes

- correct first six numbers in the pattern, 13, 18, 23, 28, 33, 38
  AND
- explanation indicating why the digit in the ones place of each number in the pattern can be only one of two different digits

For example,

- The first number has a 3 in the ones place, so one of the digits is 3 . By adding 5, you get 18, so the other digit is 8 . The next "add 5" would actually be the same as adding 10 to the starting number, and by adding 10 the ones place in the two numbers would be the same. Then adding 5 again would make an 8 in the ones place. Since you're adding by 5s and 10s only, the ones digit can only be one of two different digits in the pattern.

For this item, a partial-credit response (1 point) includes

- correct first six numbers in the pattern, 13, 18, 23, 28, 33, 38
  OR
- some explanation indicating why the digit in the ones place of each number in the pattern can be only one of two different digits

For this item, a no-credit response (0 points) includes none of the features of a full- or partial-credit response.

8 Select true or false for **each** number sentence represented below.

A $342 < 336$	☐ True	☐ False
B 43 ones $>$ 5 tens	☐ True	☐ False
C $100 + 40 + 6 < 147$	☐ True	☐ False
D 28 tens + 24 ones $>$ 29 tens + 13 ones	☐ True	☐ False

Scoring Notes:

True: C, D
False: A, B
Rationale A: only compares digit in ones place
Rationale B: only compares whole numbers, but not place value

9 A number is shown below.

594,687

Complete the table below by writing the value of the number when rounded to **each** place.

	594,687
Rounded to hundreds place	
Rounded to millions place	
Rounded to ten-thousands place	
Rounded to thousands place	

Scoring Notes:

	594,687
Rounded to hundreds place	594,700
Rounded to millions place	1,000,000
Rounded to ten-thousands place	590,000
Rounded to thousands place	595,000

10 Look at the two numbers below.

206 63

Which statement about the place value of the 6 in both numbers is true?

A The value of the 6 in 63 is the same as the value of the 6 in 206 .
B The value of the 6 in 63 is 10 times as great as the value of the 6 in 206 .
C The value of the 6 in 206 is 10 times as great as the value of the 6 in 63 .
D The value of the 6 in 206 is 100 times as great as the value of the 6 in 63 .

Scoring Notes:

Rationale A: thinks of single digit 6, not place value
Rationale B: correct
Rationale C: opposite is true
Rationale D: thinks of 100 times since 206 is a 3-digit number

11 Which equations are true? Select **all** that apply.

- ☐ **A** $518 + 79 = 587$
- ☐ **B** $518 - 79 = 439$
- ☐ **C** $5892 + 317 = 6209$
- ☐ **D** $5892 - 317 = 5585$

Scoring Notes:

Correct answers: B, C
Rationale A: did not regroup
Rationale D: subtracted lesser digit from greater digit in each place value

Nevada Instructional Materials Phase III
Grade 4 Mathematics
NVACS: M_4.NBT.B5

12 Which expression could be used to find the product of 5,039 and 8 ?

A $(5{,}000 \times 8) + (30 \times 8) + (9 \times 8)$

B $(500 \times 8) + (30 \times 8) + (9 \times 8)$

C $(5{,}000 \times 8) + (300 \times 8) + (9 \times 8)$

D $(5 \times 8) + (3 \times 8) + (9 \times 8)$

Scoring Notes:

Rationale A: correct
Rationale B: uses 500 for place value of 5 instead of 5,000
Rationale C: uses 300 for place value of 3 instead of 30
Rationale D: ignores all place values

Nevada Instructional Materials Phase III
Grade 4 Mathematics
NVACS: M_4.NBT.B6

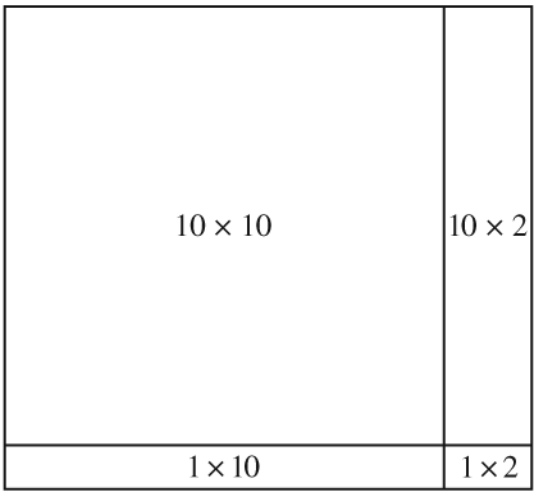
13 Maggie has 150 beads. She puts an equal number of the beads into each of 7 boxes. How many beads are remaining? Write the answer in the blank below.

_____ beads remaining

Scoring Notes:

3 (beads remaining)

14 The diagram below models the product of 2 factors.



What are the 2 factors modeled by the diagram?

Find the product modeled by the diagram. Show your work.

Write your response on the grid below.

Scoring Notes:

For this item, a full-credit response (2 points) includes

- correct two factors modeled by the diagram, 11 and 12
  AND
- correct work identifying the product modeled by the diagram

For example,

11×12

$10 \times 12 = 120$

$1 \times 12 = 12$

$120 + 12 = 132$

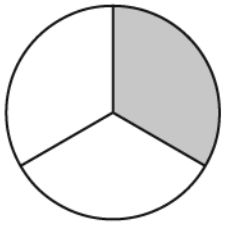
For this item, a partial-credit response (1 point) includes

- correct two factors modeled by the diagram, 11 and 12
  OR
- incorrect product based on a calculation error (work identifying the product modeled by the diagram must be shown)

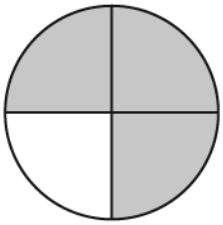
For this item, a no-credit response (0 points) includes none of the features of a full- or partial-credit response.

15 Which pictures are shaded to model a fraction that is equivalent to $\frac{3}{4}$? Select **all** that apply.

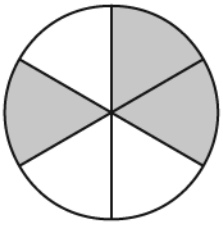
A



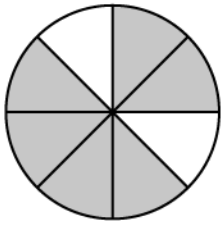
B



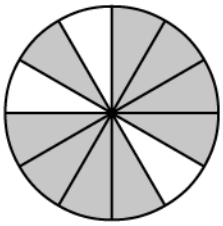
C



D



E



Scoring Notes:

Correct answers: B, D, E

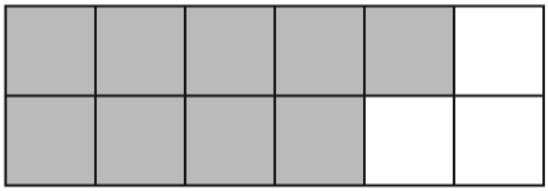
Rationale A: $4-3=1$, $\frac{1}{3}$ shaded

Rationale C: 3 sections shaded, but out of 6

16 Two equal-sized rectangles, shown below, are shaded to model $\frac{2}{4}$ and $\frac{9}{12}$.

Rectangle 1

Rectangle 2



Which statement about the shaded amount of each rectangle is true?

A Since $\frac{2}{4} = \frac{1}{2}$ and $\frac{9}{12} > \frac{1}{2}$, the shaded amount of rectangle 1 is greater than the shaded amount of rectangle 2 .

B Since $\frac{2}{4} = \frac{1}{2}$ and $\frac{9}{12} > \frac{1}{2}$, the shaded amount of rectangle 1 is less than the shaded amount of rectangle 2 .

C Since $\frac{2}{4} > \frac{1}{2}$ and $\frac{9}{12} < \frac{1}{2}$, the shaded amount of rectangle 1 is greater than the shaded amount of rectangle 2 .

D Since $\frac{2}{4} > \frac{1}{2}$ and $\frac{9}{12} < \frac{1}{2}$, the shaded amount of rectangle 1 is less than the shaded amount of rectangle 2 .

Scoring Notes:

Rationale A: misinterprets comparisons to $\frac{1}{2}$

Rationale B: correct

Rationale C: incorrect comparisons to $\frac{1}{2}$

Rationale D: incorrect comparisons to $\frac{1}{2}$, misinterprets comparisons

17 Aaron, Maria, and Cody are reading the same book.

- Aaron has read $\frac{7}{10}$ of the pages in the book.
- Maria has read $\frac{5}{8}$ of the pages in the book.
- Cody has read $\frac{2}{3}$ of the pages in the book.

A Maria says that she has read a greater fraction of the pages in the book than Aaron has read. Is Maria correct? Show your work **and** explain your thinking.

B Write a number sentence, using >, =, or <, that compares the fraction of the pages in the book that Aaron has read to the fraction of the pages in the book that Cody has read. Show or explain how you know your comparison is true.

Write your response on the grid on the next page.

Scoring Notes:

Score	Description
4	Student scores 4 points.
3	Student scores 3–3.5 points.
2	Student scores 2–2.5 points.
1	Student scores 0.5–1.5 points.
0	Student's response provides insufficient evidence of appropriate skills or knowledge to successfully accomplish the task.
Blank	No student response.

Score Points

Part A:	score 2.0 points	correct answer with correct and complete work and correct and complete explanation
	OR	
	score 1.5 points	correct answer with correct work and partially correct or incomplete explanation
	OR	
	score 1.0 point	correct answer with partially correct work and partially correct or incomplete explanation
	OR	
	score 0.5 point	correct answer with partially correct work and no explanation **OR** partially correct or incomplete explanation **OR** some correct procedure
Part B:	score 2.0 points	correct number sentence with correct and complete work or explanation
	OR	
	score 1.5 points	correct number sentence with partially correct work or incomplete explanation **OR** incomplete number sentence with correct and complete work or explanation
	OR	
	score 1.0 point	correct number sentence with no work or explanation **OR** partially correct or incomplete explanation
	OR	
	score 0.5 point	some correct procedure

Correct Answers

Part A: Maria is not correct.

$\frac{7}{10} \times \frac{4}{4} = \frac{28}{40}$
$\frac{5}{8} \times \frac{5}{5} = \frac{25}{40}$
$\frac{28}{40} > \frac{25}{40}$
or equivalent work

AND

Sample Explanation:
Maria is not correct, because $\frac{7}{10}$ is equivalent to $\frac{28}{40}$, and $\frac{5}{8}$ is equivalent to $\frac{25}{40}$. Since the fractions have the same denominator, and 28 is greater than 25, $\frac{28}{40}$ is greater than $\frac{25}{40}$. So, Aaron has read a greater fraction of the pages in the book than Maria has read.

Part B: $\frac{7}{10} > \frac{2}{3}$

$\frac{7}{10} = \frac{7 \times 3}{10 \times 3} = \frac{21}{30}$
$\frac{2}{3} = \frac{2 \times 10}{3 \times 10} = \frac{20}{30}$
$\frac{21}{30} > \frac{20}{30}$
$\frac{7}{10} > \frac{2}{3}$
or equivalent work

OR

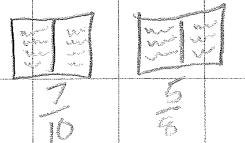
Sample Explanation:

Multiply $\frac{7}{10}$ by $\frac{3}{3}$ and $\frac{2}{3}$ by $\frac{10}{10}$ so that both fractions have the same denominator of 30. Since $\frac{21}{30} > \frac{20}{30}$, then $\frac{7}{10} > \frac{2}{3}$.

Instructional Materials Question 17

A

V- Maria says she has read a greater fraction of the pages in the book than Aaron has read. Is Maria correct?

I- 

E- $\frac{7}{10} \square \frac{5}{8}$ $\frac{7\times4}{10\times4} \square \frac{5\times5}{8\times5}$ $\frac{28}{40} \square \frac{25}{40}$

W- Maria is not correct because $\frac{7}{10}$ is greater than $\frac{5}{8}$. First I had to find a common denominator, $10\times4=40$ $8\times5=40$. So you multiply $7\times4=28$ $5\times5=25$, $\frac{28}{40} \square \frac{25}{40}$. Therefore Maria is incorrect.

B

V- Write a number sentence, using >, =, or < that compares the fraction of the pages in the book that Aaron has read to the fraction of the page in the book Cody has read.

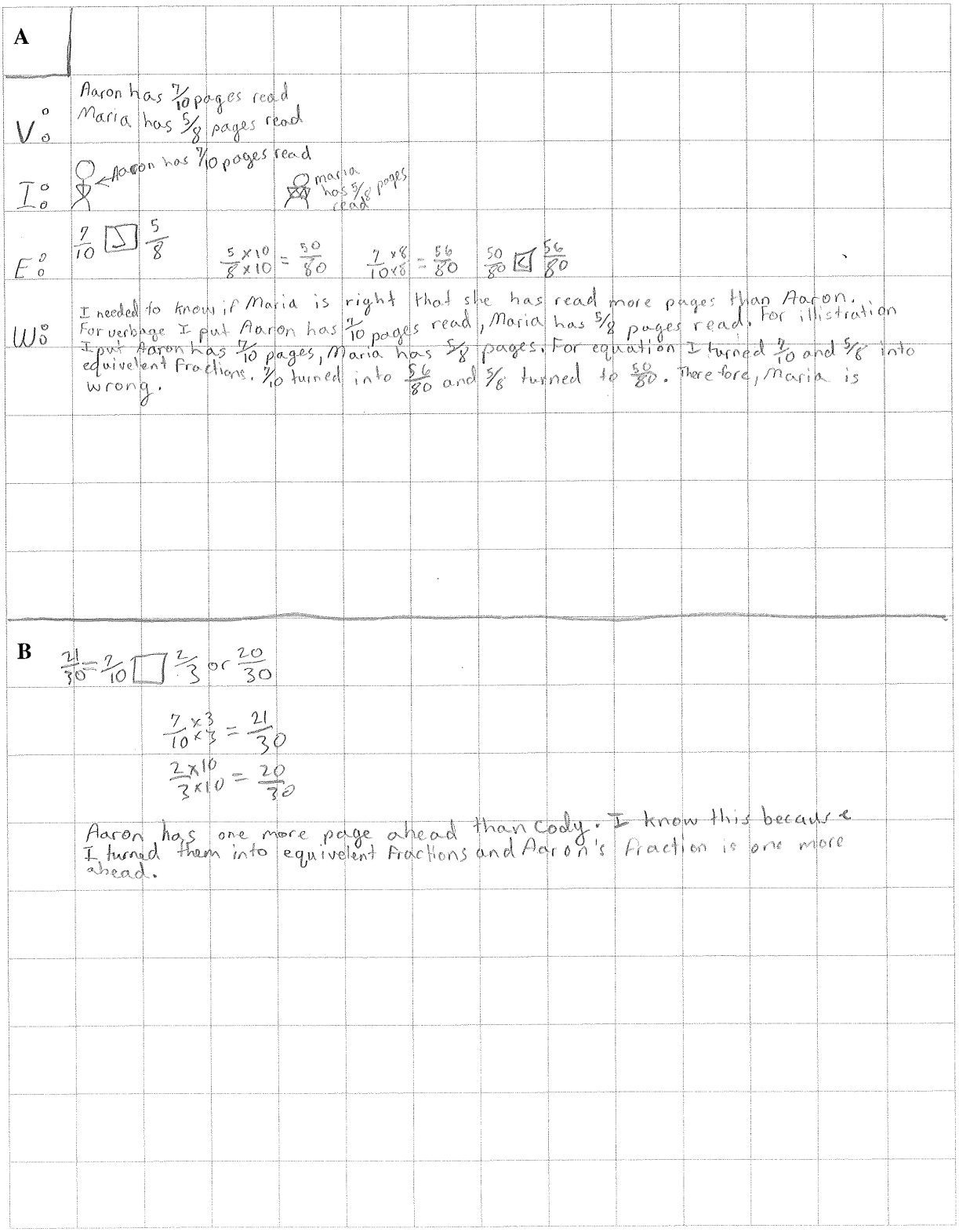
I- $\frac{7}{10}$  $\frac{2}{3}$ 

E- $\frac{7\times3}{10\times3}=\frac{21}{30} \square \frac{2\times10}{3\times10}=\frac{20}{30}$

W- The comparison is true because $\frac{7}{10}$ is greater than $\frac{2}{3}$. First you have to find a common denominator. I multiplied $10\times3=30$ $3\times10=30$, $7\times3=21$ $2\times10=20$. So $\frac{21}{30} > \frac{20}{30}$. That's how I know the comparison is true.

Score Point: 4
The response to Part A includes the correct answer with correct and complete work and correct and complete explanation (2.0). The response to Part B includes a correct number sentence with correct and complete explanation (2.0).

Instructional Materials Question 17



Score Point: 3

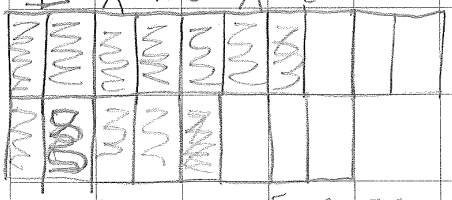
The response to Part A includes the correct answer with correct and complete work and correct and complete explanation (2.0). The response to Part B includes an incomplete number sentence with correct and complete explanation (1.5).

Instructional Materials Question 17

A

V= Aaron, Maria, and Cody are reading the same book, Maria says she read more pgs then Aaron.

I= $\frac{7}{10}$ pg. $\frac{5}{8}$ pg.



E= $\frac{7\times8}{10\times8}=\frac{56}{80}$ $\frac{5\times10}{8\times10}=\frac{50}{80}$

W= Maria says she read more pgs. then Aaron. I multiply the fact. ($\frac{7\times8}{10\times8}=\frac{56}{80}$ $\frac{5\times10}{8\times10}=\frac{50}{80}$). Maria was wrong, she read $\frac{50}{80}$, Aaron read $\frac{56}{80}$.

B

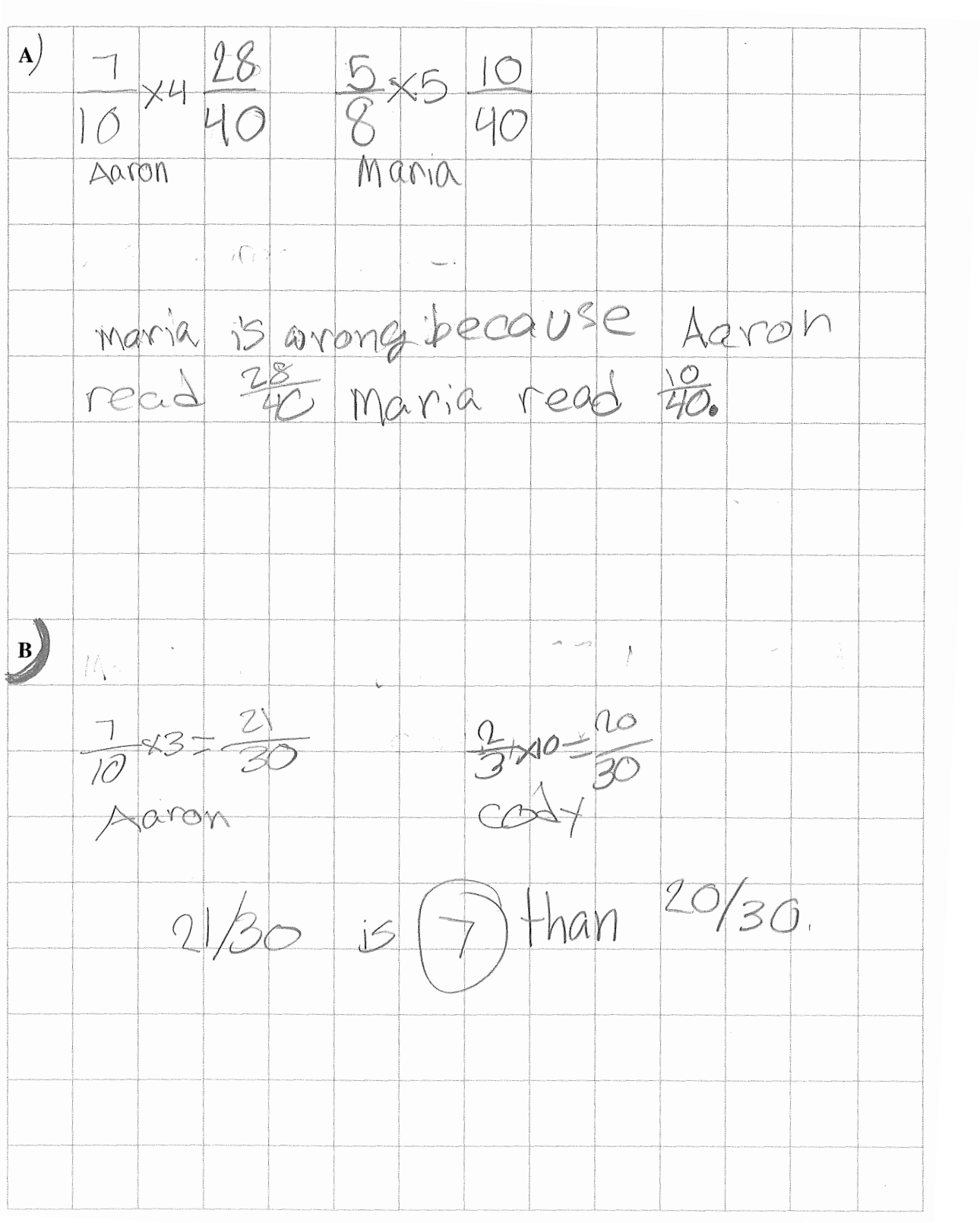
Aaron	Cody
$\frac{7\times3}{10\times3}=\frac{21}{30}$	$\frac{2\times10}{3\times10}=\frac{20}{30}$

$\frac{21}{30} > \frac{20}{30}$

$\frac{21}{30}$ = aaron $\frac{20}{30}$ = Maria

Score Point: 3
The response to Part A includes the correct answer with correct and complete work and correct and complete explanation (2.0). The response to Part B includes a correct number sentence with correct work and partially correct explanation (1.5).

Instructional Materials Question 17



Score Point: 2
The response to Part A includes the correct answer with partially correct work (0.5). The response to Part B includes a correct number sentence with correct and complete work (2.0).

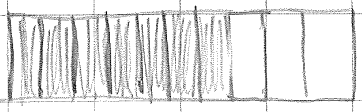
Instructional Materials Question 17

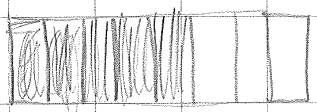
A

V Aaron read $\frac{7}{10}$ of a book
Maria read $\frac{5}{8}$ of the same book F
Cody has read $\frac{2}{3}$ of the book

$\frac{7^{\times 8}}{10^{\times 8}} \square \frac{5^{\times 10}}{8^{\times 10}}$

$\frac{56}{80} \square \frac{50}{80}$

I 



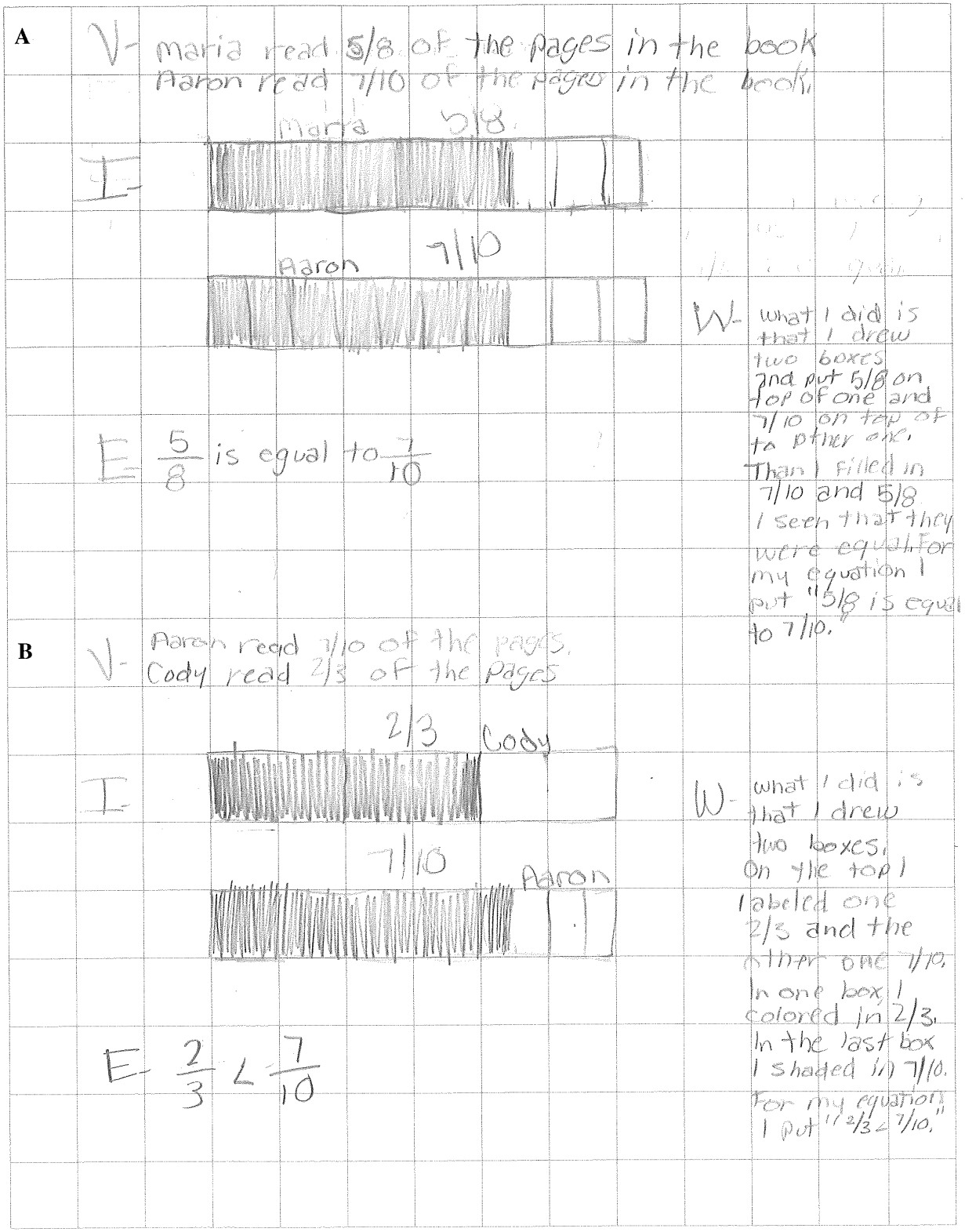
W Maria was wrong because she read $\frac{50}{80}$ of the book, and Aaron read $\frac{56}{80}$ of the book. First I drew $\frac{7}{10}$ and $\frac{5}{8}$. Next I made a common D. for each fraction. Last I saw that Maria was wrong

B

Aaron read more Cody becaus Aaron read $\frac{56}{80}$ and Cody read $\frac{20}{30}$. $\frac{56}{80}$ is > than $\frac{20}{30}$.

Score Point: 2
The response to Part A includes the correct answer with correct and complete work but incorrect model in explanation (1.5). The response to Part B includes some correct procedure (0.5).

Instructional Materials Question 17



Score Point: 1
The response to Part A is incorrect (0). The response to Part B includes a correct number sentence with incomplete explanation (1.5).

Instructional Materials Question 17

A V- Is Maria correct or is she wrong?

I- 

E- $\frac{5}{8} \times 3 = \frac{15}{24}$ = Maria

$\frac{2 \times 8}{3 \times 8}$ $\frac{16}{24}$ = Cody winner

W- Is Maria correct or is she wrong? Maria is wrong. To solve this problem first I found a common denominater for the two fractions. I found out the common denominator was 24. From there I got two new new fractions they were $\frac{15}{24}$ and $\frac{16}{24}$. I knew $\frac{16}{24}$ is bigger. $\frac{16}{24}$ is the amount Cody read. Therefore I knew Maria was incorrect.

~~B~~

V- compare the number of pages cody and Aaron read using these symbols $>, <, =$.

B. I- $52 < 55$ or $1 > 0$ or $50 = 50$

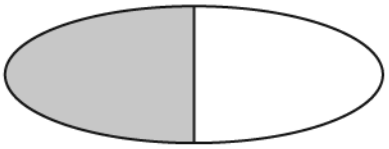
E- $\frac{20}{30} < \frac{21}{30}$

W-

Score Point: 1

The response to Part A includes some correct procedure (0.5). The response to Part B includes a correct number sentence with no work or explanation (1.0).

18 The weight of a box, in pounds, is **greater** than the fraction modeled by the diagram below.



Which of these could be the weight of the box? Select **all** that apply.

- ☐ **A** $\frac{3}{5}$ pound
- ☐ **B** $\frac{1}{4}$ pound
- ☐ **C** $\frac{5}{6}$ pound
- ☐ **D** $\frac{3}{4}$ pound
- ☐ **E** $\frac{3}{8}$ pound

Scoring Notes:

Correct answers: A, C, D
Rationale B: denominator is greater
Rationale E: numerator and denominator are greater

Nevada Instructional Materials Phase III
Grade 4 Mathematics
NVACS: M_4.NF.B3b

19 Which expressions have a value of $1\frac{5}{8}$?

Select **all** that apply.

- ☐ **A** $\frac{8}{8}+\frac{1}{8}+\frac{1}{8}+\frac{2}{8}$
- ☐ **B** $\frac{8}{8}+\frac{1}{8}+\frac{4}{8}$
- ☐ **C** $\frac{1}{8}+\frac{2}{8}+\frac{3}{8}$
- ☐ **D** $\frac{8}{8}+\frac{8}{8}+\frac{8}{8}+\frac{8}{8}+\frac{8}{8}+\frac{1}{8}$
- ☐ **E** $\frac{8}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}$
- ☐ **F** $\frac{8}{8}+\frac{5}{8}$

Scoring Notes:

Correct answers: B, E, F
Rationale A: miscounts number of eighths
Rationale C: counts $\frac{1}{8}$ as 1 whole
Rationale D: reverses whole number and numerator

Nevada Instructional Materials Phase III
Grade 4 Mathematics
NVACS: M_4.NF.B3c

20 What is $3\frac{2}{5}-2\frac{3}{5}$? Write the answer as a fraction in the blank below.

_____

Scoring Notes:

$\frac{4}{5}$ or equivalent

21 Andrea used $\frac{7}{8}$ cup of flour when making 3 batches of cookies. Which expressions could show the number of cups of flour she used in **each** of the 3 batches of cookies she made? Select **all** that apply.

- ☐ **A** $\frac{2}{8}+\frac{2}{8}+\frac{3}{8}$
- ☐ **B** $\frac{1}{8}+\frac{1}{8}+\frac{2}{8}+\frac{3}{8}$
- ☐ **C** $\frac{2}{8}+\frac{4}{8}$
- ☐ **D** $\frac{3}{8}+\frac{4}{8}+\frac{0}{8}$
- ☐ **E** $\frac{3}{8}+\frac{2}{8}+\frac{3}{8}$

Scoring Notes:

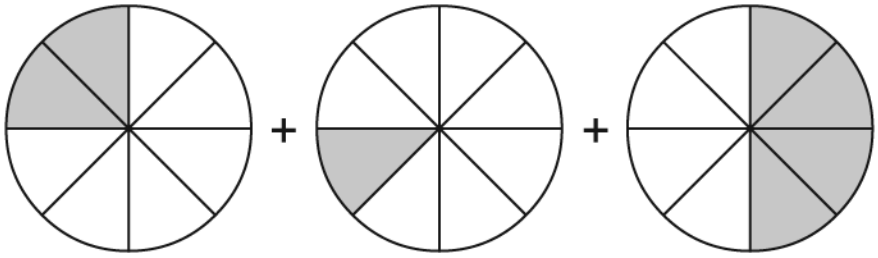
Correct answers: A, D

Rationale B: sums to $\frac{7}{8}$, but represents 4 batches

Rationale C: sums to $\frac{6}{8}$, but represents 2 batches

Rationale E: sums to $\frac{8}{8}$

22 Three friends shared a pizza. Mary ate 2 slices and Ann ate 1 slice. Pete ate twice as many slices as Mary ate. The fraction model below represents the fraction of the pizza eaten by each of the friends.



What fraction of the pizza was eaten altogether? Show your work **and** explain your thinking.

Write your response on the grid below.

Scoring Notes:

For this item, a full-credit response (2 points) includes

- correct fraction of the pizza that was eaten by the three friends, $\frac{7}{8}$

  AND
- correct work and explanation identifying the fraction of the pizza that was eaten by the three friends

For example,

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

  AND

  The model shows that the pizza was divided into 8 slices. From the model, Mary ate $\frac{2}{8}$ and Ann ate $\frac{1}{8}$ of the pizza. Pete ate twice what Mary ate, so he ate $\frac{4}{8}$ of the pizza, which is also shown in the model. Add all 3 fractions to get $\frac{7}{8}$ for the fraction of pizza eaten altogether.

For this item, a partial-credit response (1 point) includes

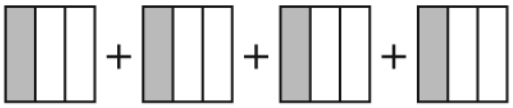
- correct fraction of the pizza that was eaten by the three friends, $\frac{7}{8}$

  OR
- incorrect fraction due to a calculation error (work must be shown) with explanation identifying the fraction of pizza that was eaten by the three friends

  OR
- some work and explanation identifying the fraction of pizza that was eaten by the three friends

For this item, a no-credit response (0 points) includes none of the features of a full- or partial-credit response.

23 A shaded fraction model is shown below.



Which equation shows the product represented by the shaded fraction model?

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

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

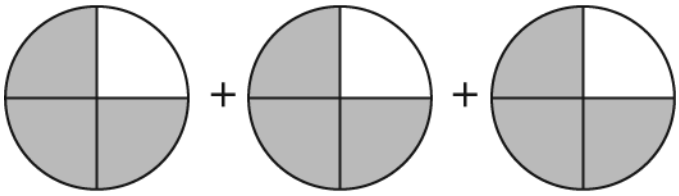
C $4 \times \frac{1}{2} = \frac{4}{2}$

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

Scoring Notes:

Rationale A: multiplies number of rectangles by fraction of area shaded instead of number of shaded parts by fraction of area shaded
Rationale B: reverses whole number and denominator
Rationale C: uses number of rectangles as denominator instead of number of parts in each rectangle
Rationale D: correct

24 A shaded fraction model is shown below.



When complete, the equation below can be used to describe the product of the shaded fraction model. Write a digit (0 through 9) in each box to complete the equation. A digit may be used in more than one box.

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

Scoring Notes:

$3 \times \frac{3}{4} = 9 \times \frac{1}{4}$

25 Each of 5 friends drank $\frac{3}{4}$ pint of lemonade. Between which two whole numbers is the total number of pints of lemonade the friends drank? Show your work or explain your thinking.

Write your response on the grid below.

Scoring Notes:

For this item, a full-credit response (2 points) includes

- correct two whole numbers, 3 and 4
  AND
- correct work showing how the two whole numbers were determined
  OR
- explanation identifying how the two whole numbers were determined

For example,

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

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

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

  OR
- Multiply $5 \times \frac{3}{4}$ to find the total number of pints the friends drank. The five friends drank a total of $3\frac{3}{4}$ pints. And, $3\frac{3}{4}$ is between the whole numbers 3 and 4, since $3\frac{3}{4}$ is greater than 3, but less than 4.

For this item, a partial-credit response (1 point) includes

- correct two whole numbers, 3 and 4
  OR
- incorrect whole numbers due to a calculation error (work must be shown for how the two whole numbers were determined)
  OR
- some explanation identifying how the two whole numbers were determined

For this item, a no-credit response (0 points) includes none of the features of a full- or partial-credit response.

26 Calvin and Max raced using potato sacks. Calvin made 9 jumps. Each jump was $\frac{1}{3}$ foot in distance. To find the total distance that he jumped, Calvin multiplied $\frac{1}{3}$ by 9 . Calvin stated that he jumped a total distance of $\frac{9}{27}$ foot, but his answer is incorrect.

A What is the total distance, in feet, that Calvin jumped? Draw a picture to model your answer **and** explain why Calvin's answer is incorrect.

B Each jump Max made was $\frac{5}{12}$ foot. Did Calvin or Max jump the greater distance on **each** jump? Show your work **and** explain your thinking.

Write your response on the grid on the next page.

Scoring Notes:

Score	Description
4	Student scores 4 points.
3	Student scores 3–3.5 points.
2	Student scores 2–2.5 points.
1	Student scores 0.5–1.5 points.
0	Student's response provides insufficient evidence of appropriate skills or knowledge to successfully accomplish the task.
Blank	No student response.

Score Points

Part A:

score 2.0 points — correct answer and model with correct and complete explanation

OR

score 1.5 points — correct answer and model with partially correct or incomplete explanation

OR

score 1.0 point — correct answer with partially correct or incomplete explanation

OR

correct model with partially correct or incomplete explanation

OR

correct answer with correct and complete explanation

OR

score 0.5 point — correct answer with no explanation

OR

correct model with no explanation

OR

partially correct or incomplete explanation

OR

some correct procedure

Part B:

score 2.0 points — correct answer with correct and complete work and correct and complete explanation

OR

score 1.5 points — correct answer with correct work and partially correct or incomplete explanation

OR

correct and complete work and correct and complete explanation

OR

score 1.0 point — correct answer with partially correct work and partially correct or incomplete explanation

OR

score 0.5 point — correct answer with no work and explanation

OR

partially correct or incomplete explanation

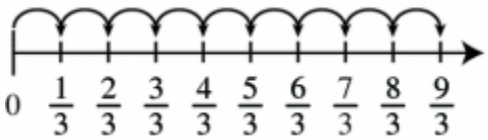
OR

some correct procedure

Correct Answers

Part A:

$\frac{9}{3}$ **(feet) or equivalent**



AND

Sample Explanation:

Calvin jumped $\frac{1}{3}$ foot 9 times. As shown by the drawing, this is $\frac{9}{3}$, not $\frac{9}{27}$. Calvin multiplied both the numerator and the denominator by 3, instead of just the numerator.

Part B: Max jumped the greater distance.

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

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

or equivalent work

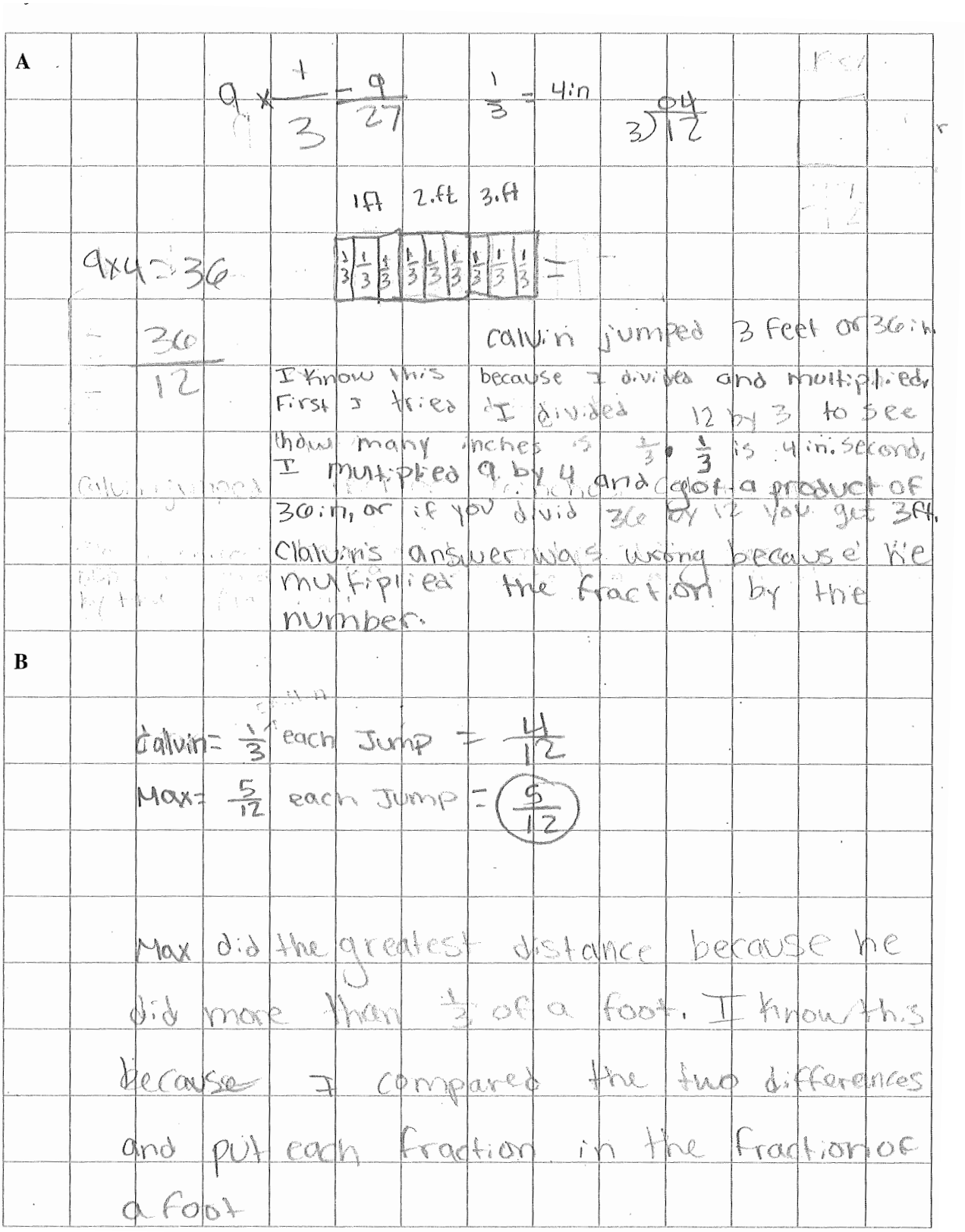
AND

Sample Explanation:

Calvin jumped $\frac{4}{12}$ foot on each jump. Max jumped $\frac{5}{12}$ foot on each jump. Since $\frac{5}{12} > \frac{4}{12}$, Max jumped the greater distance on each jump.

No 4-point responses

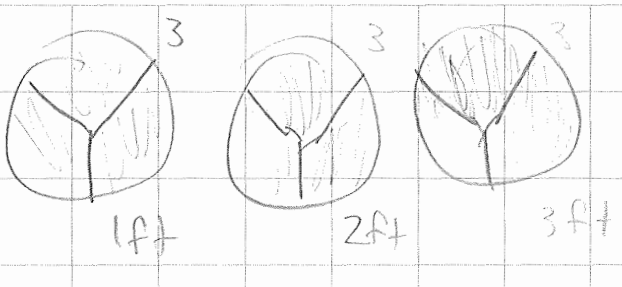
Instructional Materials Question 26



Score Point: 3
The response to Part A includes the correct answer and model with incomplete explanation (1.5). The response to Part B includes the correct answer with correct and complete work and correct and complete explanation (2.0).

Instructional Materials Question 26

A



Calvins answer was incorrect because 3 of the nine jumps would equal a foot in distance. $9 \times \frac{1}{3} = \frac{3}{3}$ or $\frac{1}{1}$. He would end up with 3 whole feet.

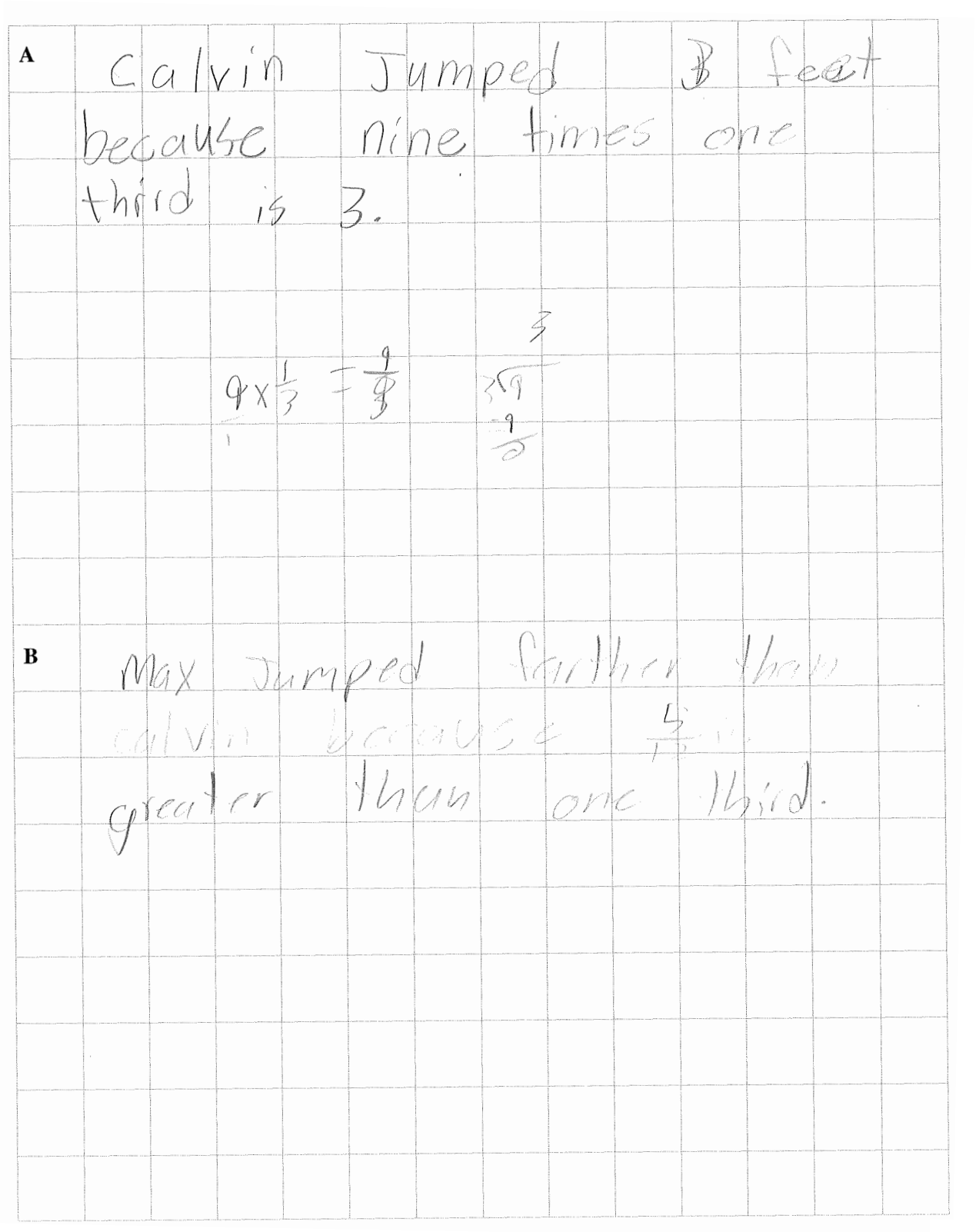
B

$\frac{1}{3} > \frac{4}{12}$ ⊗ $\frac{5}{12}$

First you have to get each to the same denominator. I turned $\frac{1}{3}$ into $\frac{4}{12}$ by multiplying each number in it by 4. $\frac{5}{12}$ is greater than $\frac{4}{12}$, so Max jumped farther

Score Point: 3
The response to Part A includes the correct answer and model with incomplete explanation (1.5).
The response to Part B includes the correct answer with correct and complete work and correct and complete explanation (2.0).

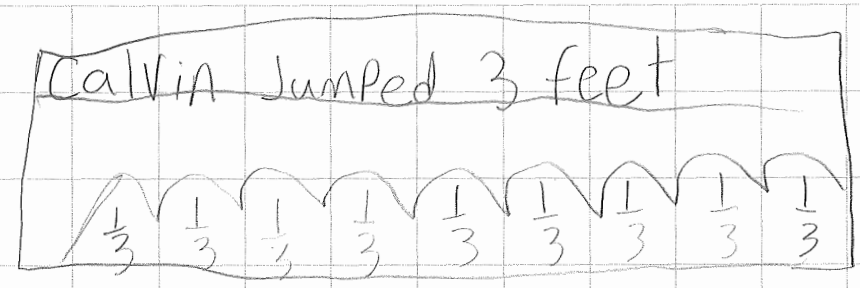
Instructional Materials Question 26



Score Point: 2
The response to Part A includes the correct answer with incomplete explanation (1.0). The response to Part B includes the correct answer with incomplete work/explanation (1.0).

Instructional Materials Question 26

A



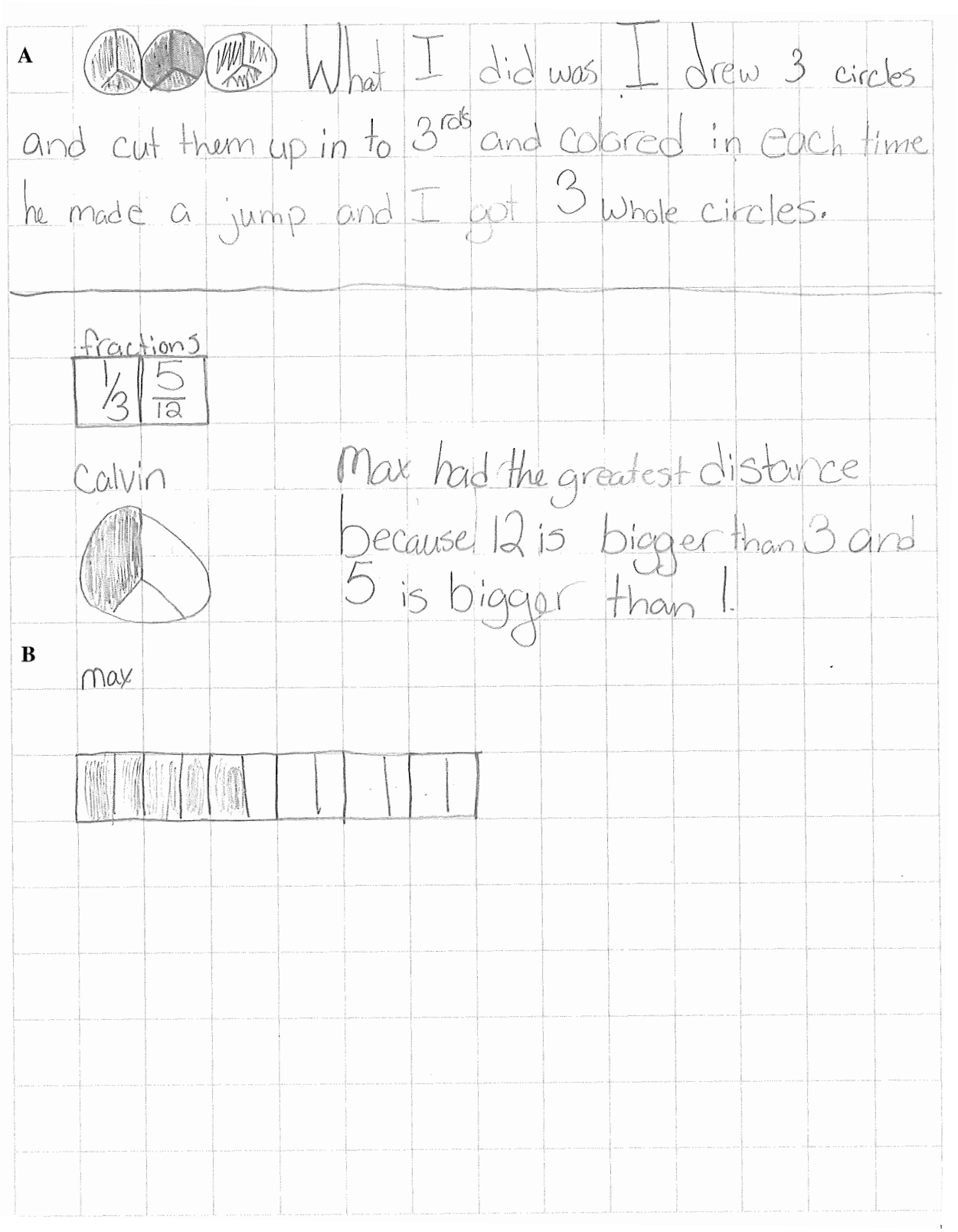
The total distance, in feet was 3 feet. Calvin's answer is incorrect because if You make 9 Jumps that $\frac{1}{3}$ each then You keep the denominator the same and just add the numerators which is $\frac{9}{3}$. $3\overline{)9}$ 3 feet

B

Calvin Jumped the greater distance because 3 is a whole number and whole numbers are bigger than $\frac{5}{12}$.

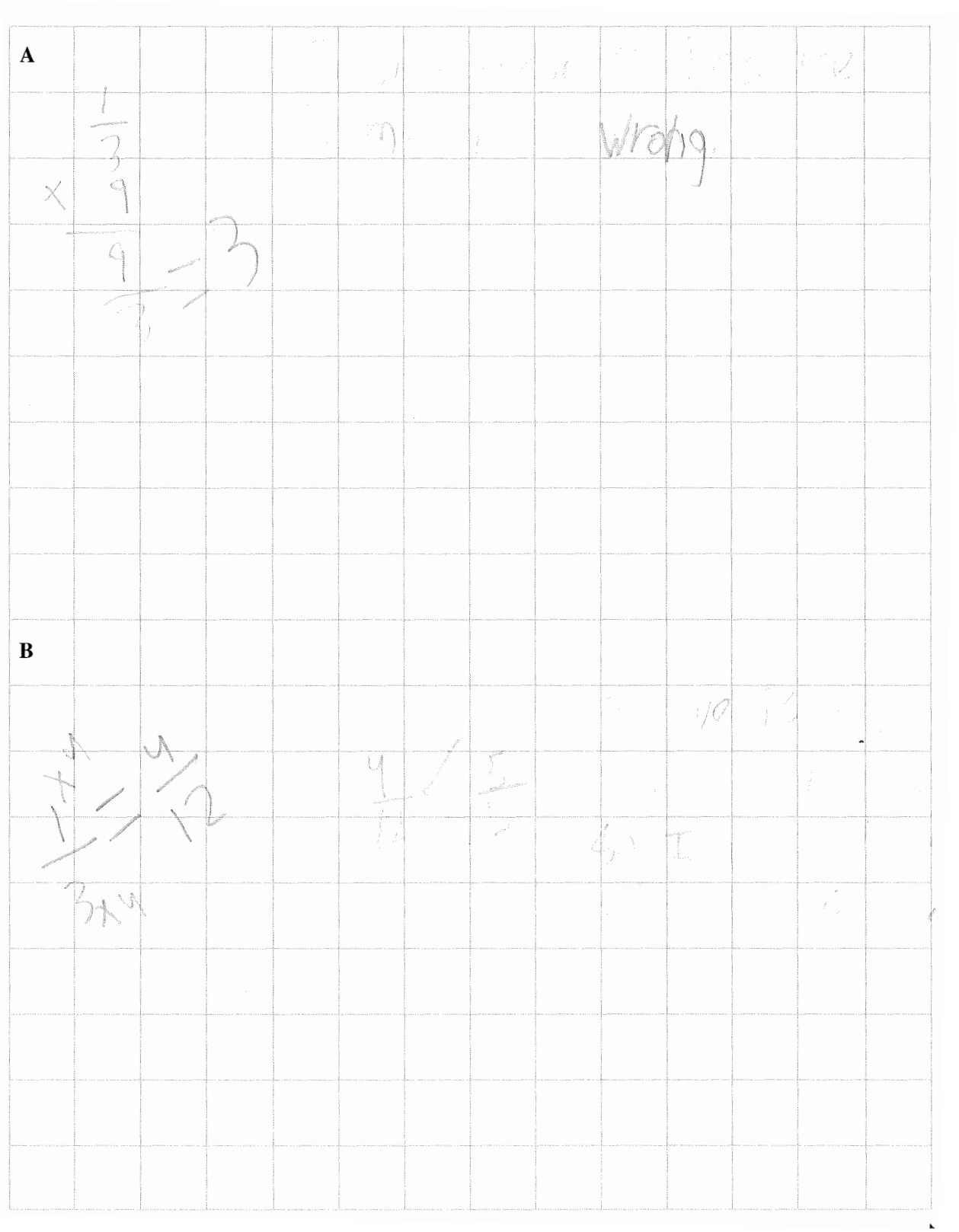
Score Point: 2
The response to Part A includes the correct answer and model with correct and complete explanation (2.0). The response to Part B is incorrect (0).

Instructional Materials Question 26



Score Point: 1
The response to Part A includes a correct model with incomplete explanation (1.0). The response to Part B includes the correct answer, but for the wrong reason, and represents a common error in student work (0).

Instructional Materials Question 26



Score Point: 1
The response to Part A includes the correct answer with no model or explanation (0.5). The response to Part B includes some correct procedure (0.5).

27 Select true or false for **each** equation below.

A $\frac{6}{10} + \frac{2}{100} = \frac{62}{100}$

☐ True ☐ False

B $\frac{2}{10} + \frac{8}{100} = \frac{10}{100}$

☐ True ☐ False

C $\frac{6}{100} + \frac{1}{10} = \frac{16}{100}$

☐ True ☐ False

D $\frac{3}{100} + \frac{4}{10} = \frac{34}{100}$

☐ True ☐ False

Scoring Notes:

True: A, C
False: B, D
Rationale B: did not notice different denominators of addends
Rationale D: combined numerators (similar to option A) but did not look at denominator of each addend

Nevada Instructional Materials Phase III
Grade 4 Mathematics
NVACS: M_4.NF.C6

28 Which decimal number is equivalent to $\frac{54}{100}$?

A 0.0054
B 0.054
C 0.54
D 5.4

Scoring Notes:

Rationale A: put two zeros in front of 54 because dividing by 100, which has two zeros
Rationale B: $\frac{54}{1000}$
Rationale C: correct
Rationale D: $\frac{54}{10}$

Nevada Instructional Materials Phase III
Grade 4 Mathematics
NVACS: M_4.NF.C6

29 Marco has read 0.05 of the pages in his book. Use the bar below to write the fraction of the pages in his book that Marco has read.

____

Scoring Notes:

$\frac{5}{100}$

30 Four incomplete number sentences and 5 digits are shown in the table below.

Number Sentence	1	2	4	5	8
$3.7 < 3.\square$					
$9.04 > 9.0\square$					
$4.5\square = 4.52$					
$2.65 > 2.\square 6$					

Put a mark in the box below **each** digit that can be used to complete **each** number sentence and make it true.

Scoring Notes:

Number Sentence	1	2	4	5	8
$3.7 < 3.\square$					✘
$9.04 > 9.0\square$	✘	✘			
$4.5\square = 4.52$		✘			
$2.65 > 2.\square 6$	✘	✘	✘	✘	

31 A conversion table for some numbers of pounds and ounces is shown below.

Pounds and Ounces

Number of Pounds	Number of Ounces
2	
4	
6	
8	

Complete the table by writing the number of ounces in each number of pounds.

Scoring Notes:

Pounds and Ounces

Number of Pounds	Number of Ounces
2	32
4	64
6	96
8	128

32 The distances, in **kilometers**, that Kurt rode his bike on Saturday and Sunday are shown below.

- Saturday: 17.2 kilometers
- Sunday: 14.8 kilometers

What is the total distance, in **meters**, that Kurt rode his bike on Saturday and Sunday?

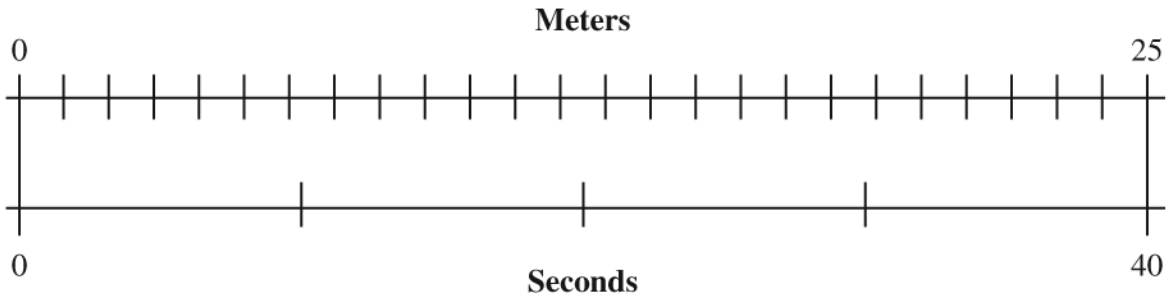
A 32 meters
B 320 meters
C 3200 meters
D 32000 meters

Scoring Notes:

Rationale A: did not convert to meters
Rationale B: converted incorrectly to meters
Rationale C: converted incorrectly to meters
Rationale D: correct

33 Jesse is practicing for a swimming competition. She swims 25 meters in 40 seconds.

A Using the double number line diagram on the next page, find about how many meters Jesse swims in 10 seconds. Explain your thinking.



B To qualify for the swimming competition, Jesse must be able to swim 1 **kilometer** in no more than 30 **minutes**.

Using this information, explain why Jesse should be able to qualify for the swimming competition.

Write your response on the grid on the next page.

Scoring Notes:

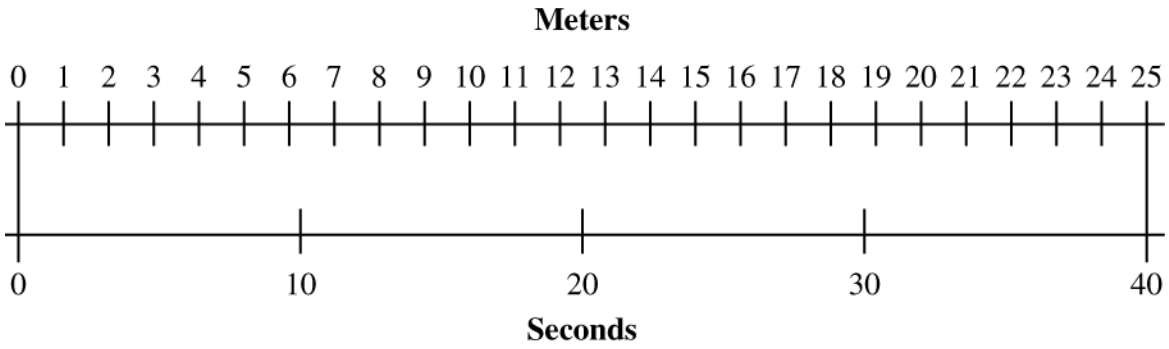
Score	Description
3	Student scores 3 points.
2	Student scores 2–2.5 points.
1	Student scores 0.5–1.5 points.
0	Student's response provides insufficient evidence of appropriate skills or knowledge to successfully accomplish the task.
Blank	No student response.

Score Points

Part A:	score 1.5 points	correct number line with correct and complete explanation
	OR	
	score 1.0 point	correct number line with partially correct or incomplete explanation **OR** partially correct or incomplete number line with correct and complete explanation
	OR	
	score 0.5 point	correct number line with no explanation **OR** partially correct or incomplete explanation **OR** partially correct or incomplete number line with no explanation **OR** some correct procedure
Part B:	score 1.5 points	correct and complete explanation
	OR	
	score 1.0 point	partially correct or incomplete explanation
	OR	
	score 0.5 point	vague explanation only **OR** some correct procedure

Correct Answers

Part A: The response shows a correct number line diagram.



AND

Sample Explanation:
I located where 10 seconds is on the bottom line of the diagram and looked right above it to find how many meters Jesse swims. Jesse swims a little more than 6 meters in 10 seconds.

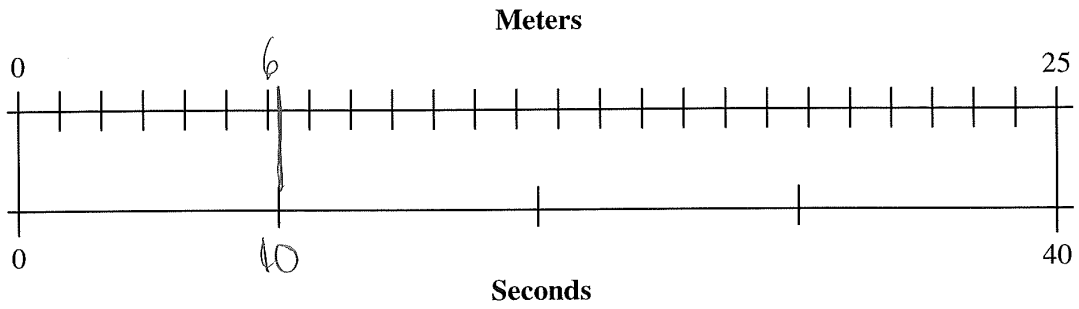
Part B: Accept all correct and complete explanations.

Sample Explanation:
1000 meters is equal to one kilometer and 60 seconds equals 1 minute.
So, Jesse has to be able to swim 1000 meters in $30 \times 60 = 1800$ seconds.
$1000 \div 25 = 40$
Swimming at the same speed, it would take her $40 \times 40 = 1600$ seconds to swim 1000 meters.
Since 1600 is less than 1800, she should be able to qualify.

No 3-point responses

Instructional Materials Question 33

A



Jesse does around 6 m in 10 seconds.

B Jesse would be able to complete a kilometer in about 26 min, and 40 sec.

$$25\overline{)1000}\quad 40,\ 100,\ 0$$

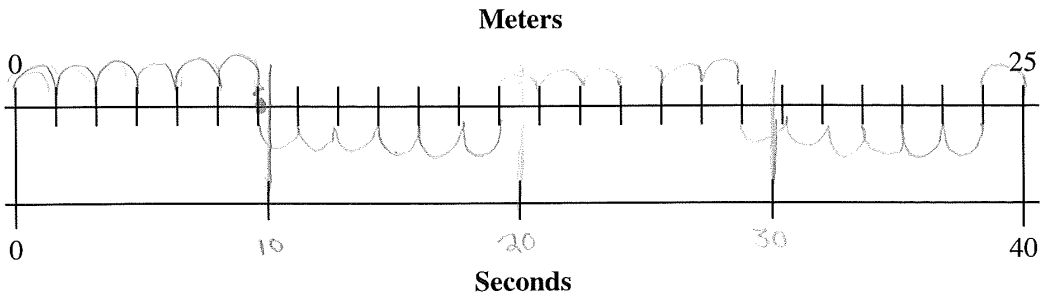
$$40 \times 40 = 1600$$

$$60\overline{)1600}\quad 20,\ 400,\ 360,\ 40$$

Score Point: 2
The response to Part A includes an incomplete number line with no explanation (0.5). The response to Part B includes a correct and complete explanation (1.5).

Instructional Materials Question 33

A



Every ten seconds, Jesse swims about 6 meters. I know this because the closest mark to the ten second line is the mark for the number six.

B

25m in 40s

1000m in 1800s

$$4\overline{)1800} \quad 450 \quad 16 \quad 20 \quad 200$$

$$25\overline{)1000} \quad 40 \quad 100 \quad 00$$

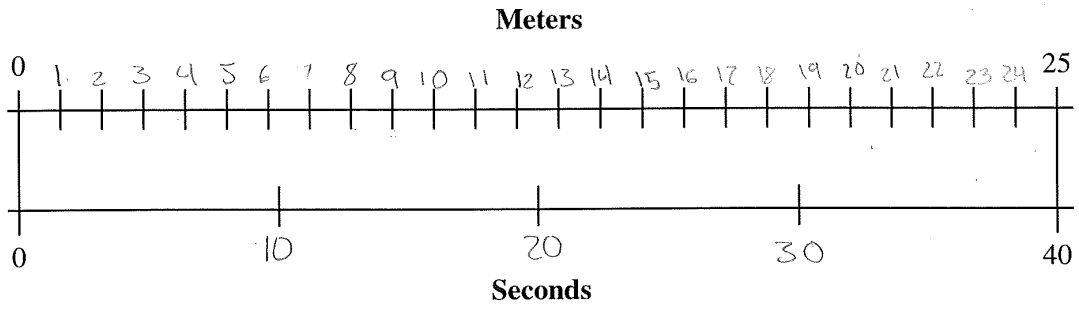
$$30 \times 60 = 1800$$

Jesse will be able to qualify for the swimming competition because 25 meters is equal to 1000 meters, and 40 seconds is equal to 1800 seconds. I know this because I divided 1000 by 25 and 1800 by 40, and got an even amounts. To conclude, Jesse should be able to qualify.

Score Point: 2
The response to Part A includes a correct number line with correct and complete explanation (1.5). The response to Part B includes some correct procedure (0.5).

Instructional Materials Question 33

A



I filled in the chart. The seconds go by 10 and the meters go by ones. Then I looked at 10 and went up and the awnser is 6 1/3.

B

30
60
00
+180
180

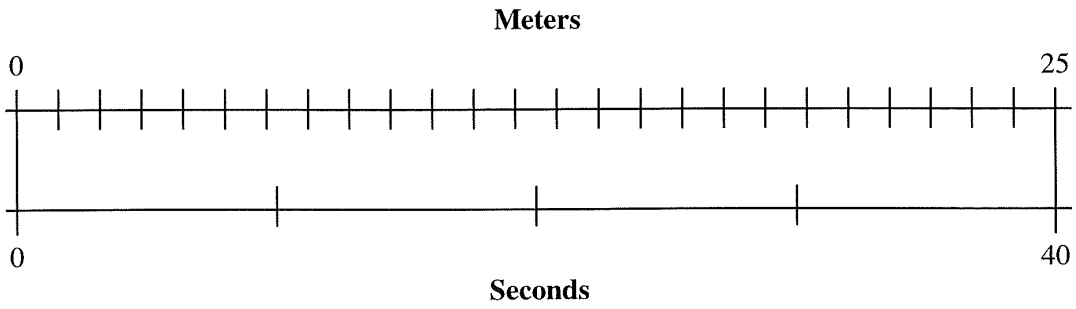
40 | 180 (16 r 2)
35
x16
150
250
400

Jesse will be able to qualify because she will be able to do more than 1 kilometer. She will be able to at least do 4.

Score Point: 1
The response to Part A includes a correct number line with correct and complete explanation (1.5). The response to Part B is incorrect (0).

Instructional Materials Question 33

A



He swims around 6 meters each 10 seconds.

B

Jesse will make 1 kilometer because he has a long time to mak it.

Score Point: 1
The response to Part A includes some correct procedure (0.5). The response to Part B is incorrect (0).

34 The length and width of a rectangle are each a whole number of inches. The perimeter of the rectangle is 40 inches. Which of these could be the area of the rectangle? Select **all** that apply.

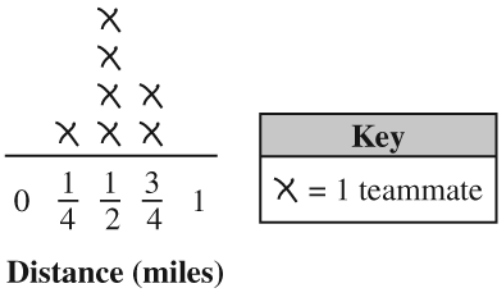
- ☐ **A** 36 square inches
- ☐ **B** 51 square inches
- ☐ **C** 68 square inches
- ☐ **D** 75 square inches
- ☐ **E** 80 square inches
- ☐ **F** 100 square inches

Scoring Notes:

Correct answers: A, B, D, F
Rationale C: thinks all multiples of 4 could be the area
Rationale E: doubles perimeter

35 Kara, Mary, and Danielle are part of a swim team. The line plot below shows the distances they and each of their teammates swam during practice today.

Swim Team Practice



Kara swam the **least** distance of any teammate. Mary and Danielle swam the **greatest** distance of any teammate. What is the total number of miles that Kara, Mary, and Danielle swam during practice today? Show your work or explain your thinking.

Write your response on the grid below.

Scoring Notes:

For this item, a full-credit response (2 points) includes

- correct number of miles, $1\frac{3}{4}$ (miles)

  AND
- correct work showing how the total number of miles was determined

  OR
- explanation indicating how the total number of miles was determined

For example,

- $\frac{1}{4}+\frac{3}{4}+\frac{3}{4}=\frac{7}{4}=1\frac{3}{4}$

  OR
- Kara swam $\frac{1}{4}$ mile, which is the least distance. Mary and Danielle each swam $\frac{3}{4}$ mile, which is the greatest distance. Add the three totals to find the total distance of $1\frac{3}{4}$ miles for the three swimmers.

For this item, a partial-credit response (1 point) includes

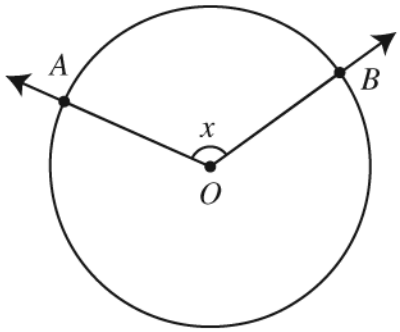
- correct number of miles, $1\frac{3}{4}$ (miles)

  OR
- incorrect number of miles due to a calculation error (work must be shown)

  OR
- some explanation indicating how the total number of miles was determined

For this item, a no-credit response (0 points) includes none of the features of a full- or partial-credit response.

36 Ray *OA* and ray *OB* meet at the center of circle *O* to form angle *AOB*, as shown below.



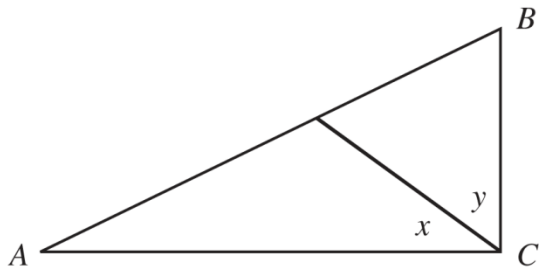
Exactly $\frac{1}{3}$ of circle *O* lies within angle *AOB* . What is the measure (*x*) of angle *AOB* ?

A 30°
B 60°
C 120°
D 180°

Scoring Notes:

Rationale A: 3 in denominator of fraction
Rationale B: common angle measurement
Rationale C: correct
Rationale D: estimates half a circle; common angle measurement

37 In triangle *ABC*, shown below, the measure of angle *ACB* is 90° .



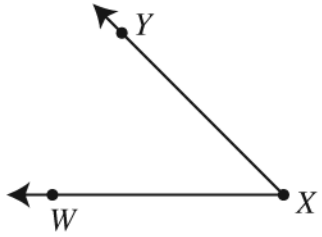
Which of these could be the measures of x and y ? Select **all** that apply.

- ☐ **A** $x = 30°$ and $y = 55°$
- ☐ **B** $x = 45°$ and $y = 45°$
- ☐ **C** $x = 60°$ and $y = 30°$
- ☐ **D** $x = 20°$ and $y = 40°$
- ☐ **E** $x = 17°$ and $y = 73°$
- ☐ **F** $x = 23°$ and $y = 57°$

Scoring Notes:

Correct answers: B, C, E
Rationale A: sum of 85°
Rationale D: sum of 60°
Rationale F: sum of 80°

38 Angle *WXY* is shown in the diagram below. Using a measuring tool, draw angle *WXZ* on the diagram so that angle *WXZ* measures 100° **more** than angle *WXY* . Explain how you got your answer.



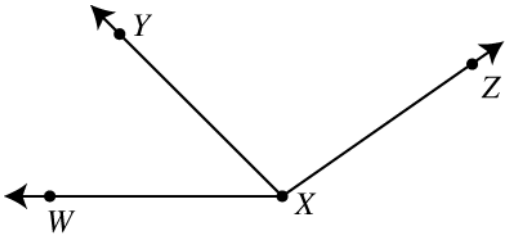
Write your response on the grid below.

Scoring Notes:

For this item, a full-credit response (2 points) includes

- correct angle measure for angle *WXZ,* 145°, with point *Z* labeled on ray
  AND
- explanation indicating how angle *WXZ* was determined

For example,

- 

  AND

  I measured angle *WXY* as 45°, so angle *WXZ* has to measure 145° . So I drew angle *WXZ* measuring 145° .

  OR

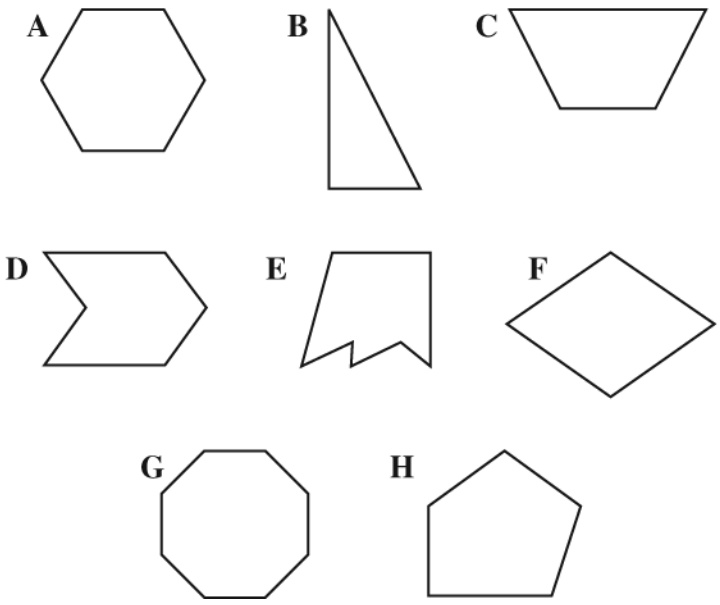
  Since angle *WXZ* measures 100° more than angle *WXY*, I needed to add a 100° angle onto angle *WXY* . So I drew a 100° angle with ray *XY* as one of its sides.

For this item, a partial-credit response (1 point) includes

- correct angle measure for angle *WXZ,* 145°, with point *Z* labeled on ray
  OR
- some explanation indicating how angle *WXZ* was determined
  OR
- angle *WXZ* drawn within ± 0.5°, with point *Z* labeled on ray

For this item, a no-credit response (0 points) includes none of the features of a full- or partial-credit response.

39 Circle **each** shape below that appears to contain perpendicular line segments.



Scoring Notes:

Correct answers: B, E, H
Rationale A: confuses perpendicular and parallel
Rationale C: confuses perpendicular and parallel
Rationale D: confuses perpendicular and parallel
Rationale F: confuses perpendicular and parallel
Rationale G: confuses perpendicular and parallel

40 Anusha drew 4 line segments to make a quadrilateral with 2 right angles, 1 acute angle, and 1 obtuse angle.

Draw a quadrilateral that could look like the quadrilateral Anusha drew. Write the name that **best** describes the quadrilateral you drew, and use the relationship between the sides of the quadrilateral to explain your thinking.

Write your response on the grid below.

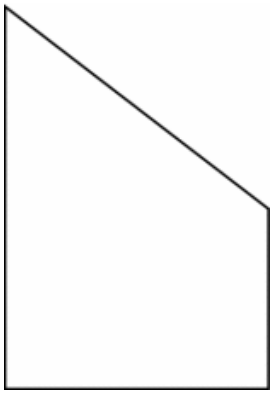
Scoring Notes:

For this item, a full-credit response (2 points) includes

- correct drawing of the quadrilateral
  AND
- correct name of the quadrilateral drawn, trapezoid
  AND
- explanation using the relationship between the sides of the quadrilateral

For example,

- student draws a trapezoid similar to:



  AND
- The figure is a trapezoid because at least one pair of sides is parallel.

For this item, a partial-credit response (1 point) includes

- correct drawing of the quadrilateral
  OR
- correct name of the quadrilateral drawn, trapezoid
  OR
- some explanation using the relationship between the sides of the quadrilateral

For this item, a no-credit response (0 points) includes none of the features of a full- or partial-credit response.

(Note: A trapezoid is defined as having at least one pair of parallel sides.)

41 Angle x is labeled in the rectangle shown below.

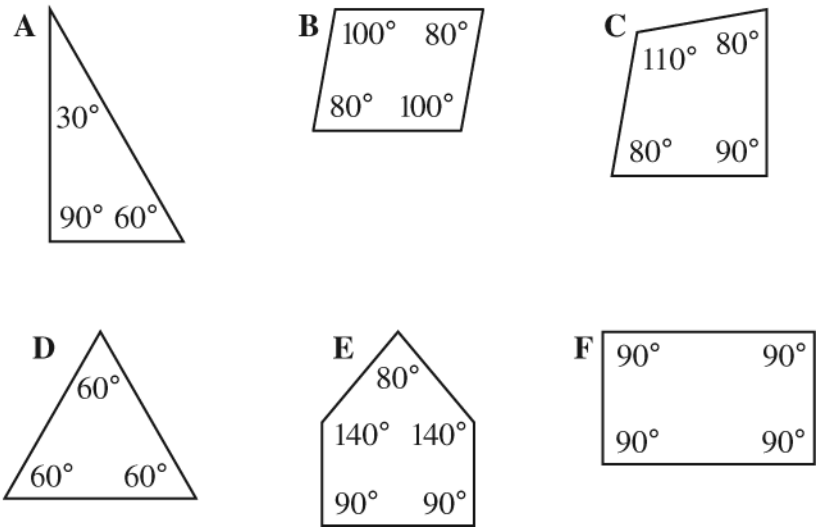
What type of angle is angle x ?

A acute
B obtuse
C parallel
D right

Scoring Notes:

Rationale A: confuses acute and right angles
Rationale B: confuses obtuse and right angles
Rationale C: familiar term
Rationale D: correct

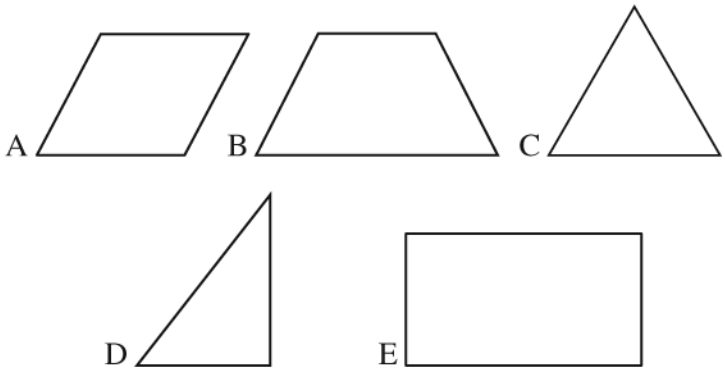
42 Circle **all** the figures below that can be classified as parallelograms.



Scoring Notes:

Correct answers: B, F
Rationale A: thinks 90° angle implies parallelogram
Rationale C: thinks some opposite angles of equal measure implies parallelogram
Rationale D: thinks all angles of equal measure implies parallelogram
Rationale E: contains some parallel segments

43 Five shapes are shown below.



A Complete the table on the next page by placing check marks in each row to describe whether the shape appears to have parallel sides and/or perpendicular sides. Check **all** that apply.

B Name a shape that has **both** parallel and perpendicular sides that is **not** shown above or described in the table. Explain your thinking.

Write your response on the grid on the next page.

Scoring Notes:

Score	Description
3	Student scores 3 points.
2	Student scores 2–2.75 points.
1	Student scores 0.25–1.5 points.
0	Student's response provides insufficient evidence of appropriate skills or knowledge to successfully accomplish the task.
Blank	No student response.

Score Points

Part A:	score 1.5 points	correct and complete table deduct 0.25 point for each incorrect check mark (maximum deduction 1.5 points)
Part B:	score 1.5 points **OR**	correct answer (answers may vary) with correct and complete explanation
	score 1.0 point **OR**	correct answer (answers may vary) with partially correct or incomplete explanation
	score 0.5 point	correct answer (answers may vary) with no explanation **OR** partially correct, vague, or incomplete explanation **OR** some correct procedure

Correct Answers

Part A: Correct and complete table.

Shape	Parallel Sides	Perpendicular Sides
A	✓	
B	✓	
C		
D		✓
E	✓	✓

Part B: Answers may vary.

Sample Answer and Explanation:
Square
It can be a square because a rectangle is already shown. I know squares (as well as rectangles) have both perpendicular and parallel sides because the angles formed at each corner are 90° (definition of perpendicular) and because the distance between the opposite sides is always the same distance apart and the sides will never meet (definition of parallel).

OR

Trapezoid
It can be a different trapezoid than the one shown. This trapezoid could have 2 angles that measure 90° . The trapezoid would have sides that are perpendicular because of the 90° angles (definition of perpendicular), and it would have sides that are parallel because the angles between them are equal, which means the sides will never meet (definition of parallel).

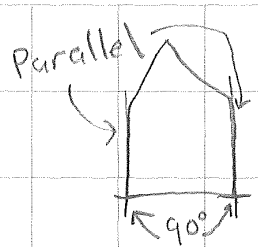
(Note: Student could name any shape [e.g., pentagon, hexagon] if the figure contains 2 angles that measure 90° as described above.)
(Note: A trapezoid is defined as having at least one pair of parallel sides.)

Instructional Materials Question 43

A

Shape	Parallel Sides	Perpendicular Sides
A	2	0
B	1	0
C	0	0
D	0	1
E	2	4

B



A shape that has parallel and Perpendicular sides and are not any of the five shapes is a Pentagon. It has 2 perpendicular sides that make a 90° angle. It also has parallel lines on the sides.

Score Point: 3
The response to Part A includes a correct and complete table (parallel column counts pairs of sides; perpendicular column counts right angles) (1.5). The response to Part B includes a correct answer with correct and complete explanation (1.5).

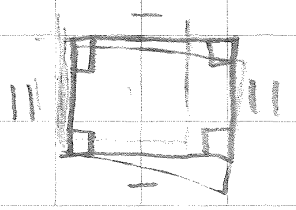
Instructional Materials Question 43

A

Shape	Parallel Sides	Perpendicular Sides
A	✓	
B	✓	
C		
D	✓	✓
E	✓	✓

B

A square because all the sides are the same length and it is like a rectangle.



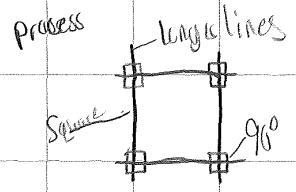
Score Point: 2
The response to Part A includes a correct and complete table (1.5). The response to Part B includes a correct answer with incomplete explanation (1.0).

Instructional Materials Question 43

A

Shape	Parallel Sides	Perpendicular Sides
A	✓	
B		
C		
D		✓
E	✓	✓

B I see a Shape on this graph paper. I is the squares. A perpendicular side is when they all have degrees of 90°. If you draw the lines longer, you will see ninety degrees.



Score Point: 2
The response to Part A includes a table with missing check mark for shape B (1.25). The response to Part B includes a correct answer with incomplete explanation (1.0).

Instructional Materials Question 43

A

Shape	Parallel Sides	Perpendicular Sides
A	✓	
B	✓	
C		
D		✓
E	✓	✓

B

Explenation: The rectangular (shape E) has parallel lines and perpindicular lines. I know this because I used pictures and a table. First, I checked all the shapes that had Parallel sides or Perpindicular sides, then I recordedit on the table. After that, I saw that a rectangular has Parallel sides and Perpindicular sides.

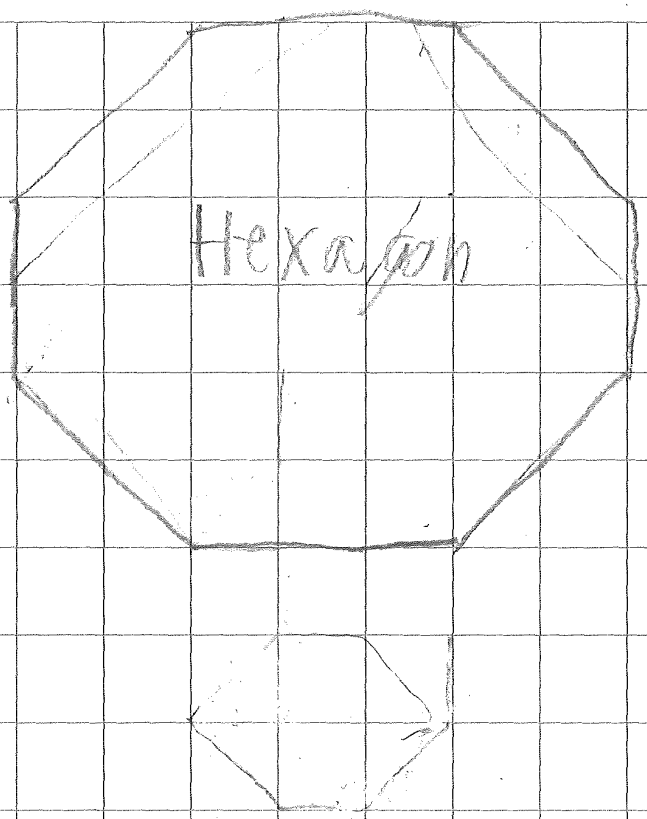
Score Point: 1
The response to Part A includes a correct and complete table (1.5). The response to Part B is incorrect (0).

Instructional Materials Question 43

A

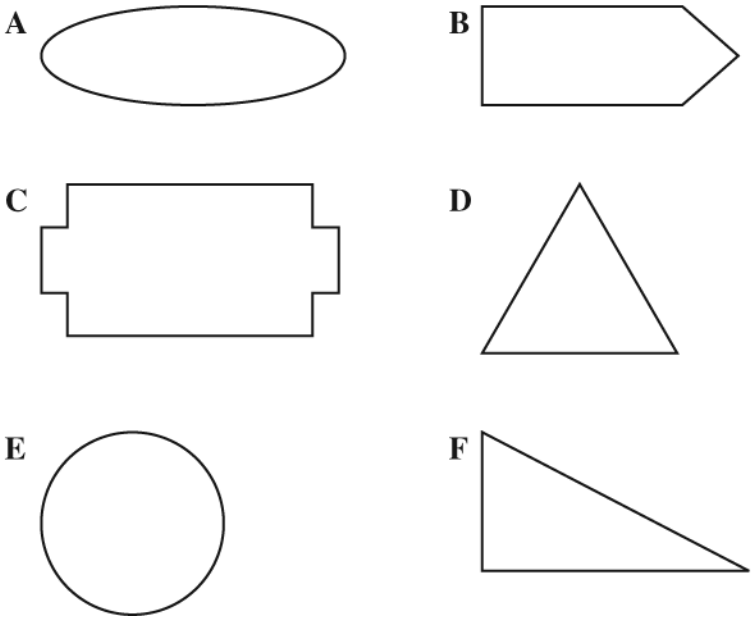
Shape	Parallel Sides	Perpendicular Sides
A	✓	
B	✓	
C		✓
D		✓
E	✓	

B



Score Point: 1
The response to Part A includes a table with additional check mark for shape C and missing check mark for shape E (1.0). The response to Part B is incorrect (0).

44 Circle each figure below on which **more** than 1 line of symmetry could be drawn.



Scoring Notes:

Correct answers: A, C, D, E
Rationale B: only 1 line of symmetry
Rationale F: no lines of symmetry

45 A picture of a butterfly is shown below.

Draw all lines of symmetry on the butterfly. Explain how you know your answer is correct.

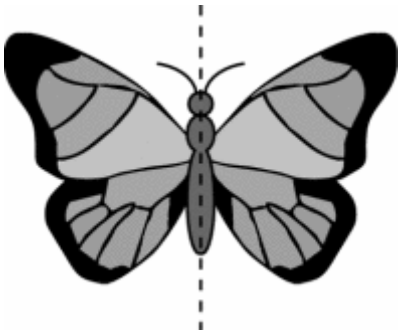
Write your response on the grid below.

Scoring Notes:

For this item, a full-credit response (2 points) includes

- correct line of symmetry drawn on the picture of the butterfly
  AND
- correct explanation indicating why only one line is drawn on the picture

For example,

- 

  AND
- The only line of symmetry goes down the center vertically because this is the only way you can fold the figure in half on this line and have all the sides match up. There is no horizontal line of symmetry because if you folded horizontally the top wings are bigger than the bottom. Similarly, a diagonal line wouldn't work because the large wings would not match up with the opposite small wings. So there is only one line of symmetry on this shape, as I have drawn.

For this item, a partial-credit response (1 point) includes

- correct line of symmetry drawn on the picture of the butterfly
  OR
- some explanation indicating why only one line is drawn on the picture

For this item, a no-credit response (0 points) includes none of the features of a full- or partial-credit response.

Nevada Ready!

Dale A.R. Erquiaga
Superintendent of Public Instruction

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