Nevada Ready!

Nevada Instructional Materials

for the

Nevada Academic Content Standards for Mathematics

Grade 4

STUDENT WORKBOOK

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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.

Name: _____

Mathematics
Grade 4

This booklet contains mathematics questions for you to answer. There are four types of questions in this booklet: multiple-choice, selected-response (some of which are simulated technology-enhanced), short-answer, and written-response questions.

- **For the multiple-choice questions you will be given four answer choices—A, B, C, and D. You are to select the correct answer from the four choices. Each question has only one correct answer.**
- **For simulated technology-enhanced questions, you will be required to perform the required task (e.g., filling in the blank(s), matching, graphing, completing tables).**
- **For other selected-response questions, you will be given different numbers of answer choices. You are to select ALL the correct answers from the choices. Each question has multiple correct answers.**
- **The short-answer questions and the written-response questions require you to give a written response to a question as indicated in the booklet.**

You may use the rubrics below to help you do a good job when you are answering the short-answer questions and the written-response questions.

Two-Point Short-Answer

Score	Description
2	Response: • Demonstrates an understanding of the standard • Answers the question clearly and correctly • Includes all work to show how the answer was found and/or a correct and complete explanation
1	Response: • Demonstrates a limited understanding of the standard • Answers part of the question correctly • Includes some work to show how the answer was found and/or a partially correct explanation
0	Response: • Is not correct • Includes no answer and/or an insufficient (or no) explanation

Three-Point Extended-Response

Score	Description
3	Response: • Demonstrates a thorough understanding of the standard • Answers all parts of the question clearly and correctly • Includes all work to show how the answer was found and/or a correct and complete explanation
2	Response: • Demonstrates a general understanding of the standard • Answers most parts of the question correctly • Includes some work to show how the answer was found and/or a partially correct explanation
1	Response: • Demonstrates a minimal understanding of the standard • Answers some part of the question • Includes minimal (or no) work to show how the answer was found and/or a minimal (or no) explanation
0	Response: • Is not correct • Includes no answer and/or an insufficient (or no) explanation

Four-Point Extended-Response

Score	Description
4	Response: • Demonstrates a thorough understanding of the standard • Answers all parts of the question clearly and correctly • Includes all work to show how the answer was found and/or a correct and complete explanation
3	Response: • Demonstrates a general understanding of the standard • Answers most parts of the question correctly • Includes some work to show how the answer was found and/or a partially correct explanation
2	Response: • Demonstrates a limited understanding of the standard • Answers some parts of the question correctly • Includes minimal work to show how the answer was found and/or a minimal explanation
1	Response: • Demonstrates a minimal understanding of the standard • Answers some part of the question • Includes insufficient (or no) work to show how the answer was found and/or an insufficient (or no) explanation
0	Response: • Is not correct • Includes no answer and/or an insufficient (or no) explanation

Operations and Algebraic Thinking

Grade 4
Student Workbook

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 $48 \times 6 = 8$

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

Go On

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

Go On

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.

Go On

A

B

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

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

Go On

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.

STOP

Number and Operations in Base Ten

Grade 4
Student Workbook

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

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	

Go On

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 .

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

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

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

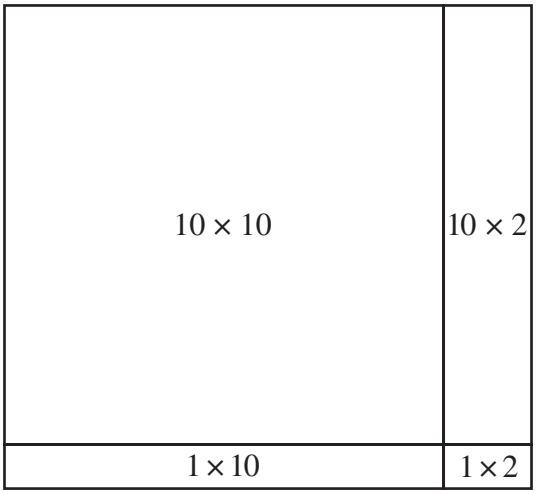
A $(5{,}000 \times 8) + (30 \times 8) + (9 \times 8)$
B $(500 \times 8) + (30 \times 8) + (9 \times 8)$
C $(5{,}000 \times 8) + (300 \times 8) + (9 \times 8)$
D $(5 \times 8) + (3 \times 8) + (9 \times 8)$

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

Go On

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.

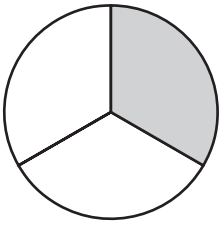
STOP

Number and Operations—Fractions

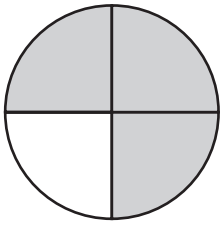
Grade 4
Student Workbook

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

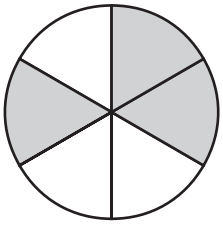
A



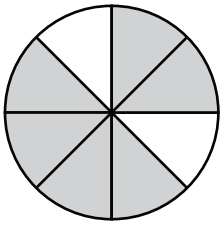
B



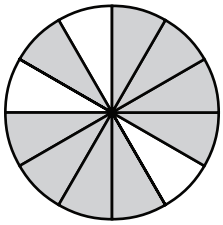
C



D



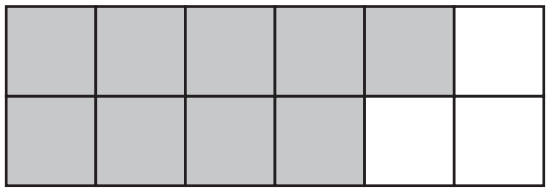
E



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 .

Go On

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.

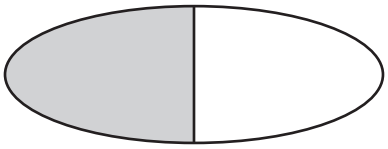
Write your response on the grid on the next page.

Go On

A

B

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

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** $\frac{8}{8}+\frac{5}{8}$

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

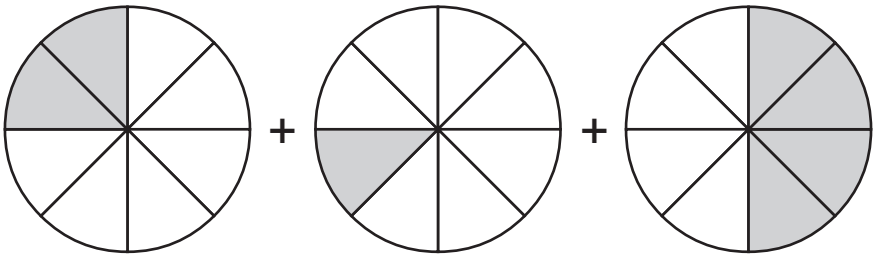
_____

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** $\frac{3}{8}+\frac{2}{8}+\frac{3}{8}$

Go On

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.

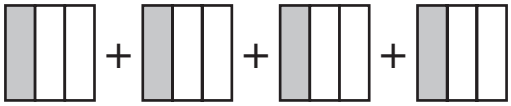


What fraction of the pizza was eaten altogether? Show your work **and** explain your thinking.

Write your response on the grid below.

Go On

23 A shaded fraction model is shown below.



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

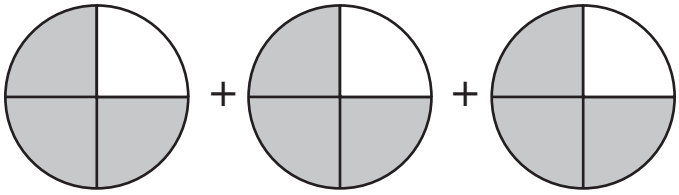
A $2 \times \frac{1}{3} = \frac{2}{3}$

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

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

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

24 A shaded fraction model is shown below.

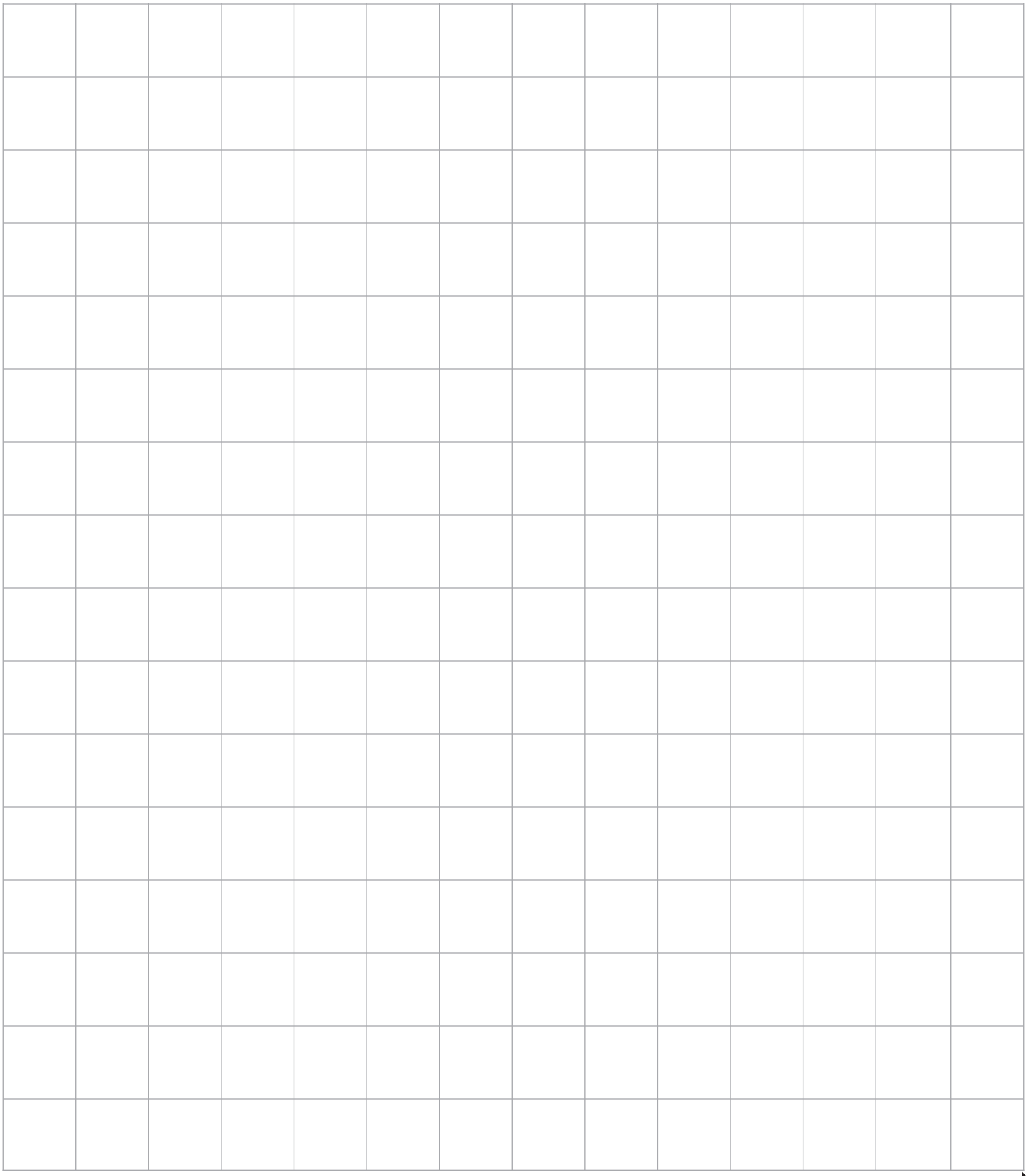


When complete, the equation below can be used to describe the product of the shaded fraction model. Write a digit (0 through 9) in each box to complete the equation.
A digit may be used in more than one box.

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

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.



Go On

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.

A

B

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

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

A 0.0054
B 0.054
C 0.54
D 5.4

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.

____

Go On

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.

STOP

Measurement and Data

Grade 4
Student Workbook

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.

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

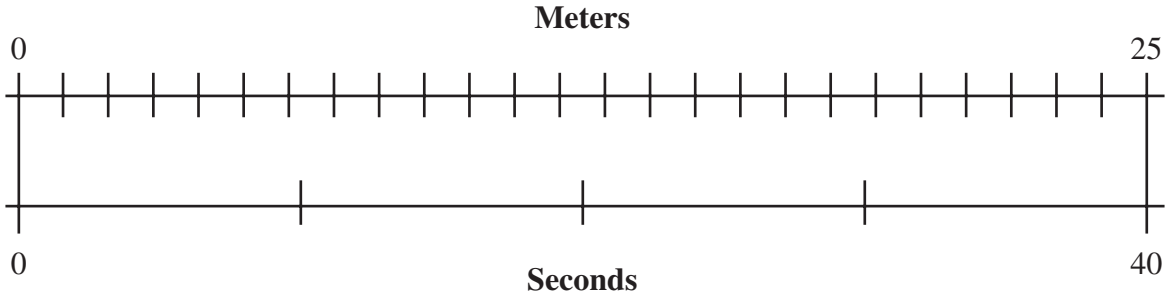
What is the total distance, in **meters**, that Kurt rode his bike on Saturday and Sunday?

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

Go On

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.

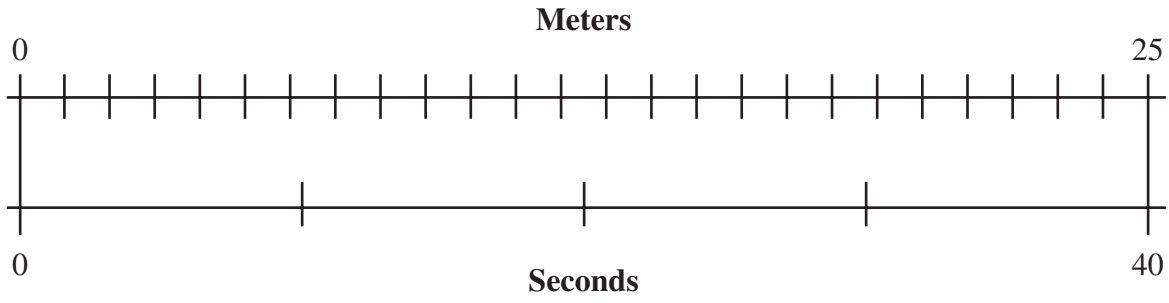


B To qualify for the swimming competition, Jesse must be able to swim 1 **kilometer** in no more than 30 **minutes**.

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.

A



B

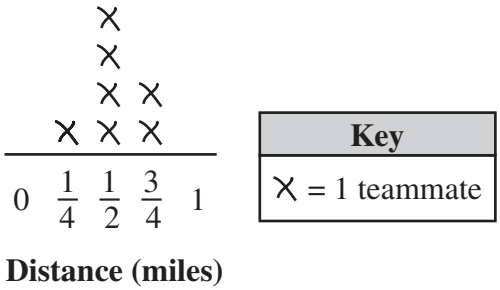
34 The length and width of a rectangle are each a whole number of inches. The perimeter of the rectangle is 40 inches. Which of these could be the area of the rectangle? Select **all** that apply.

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

Go On

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



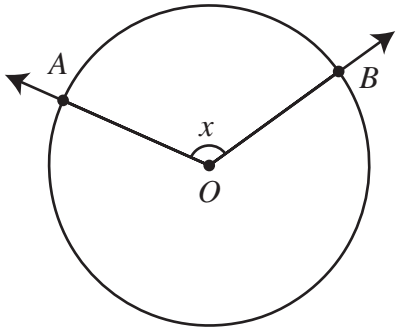
Distance (miles)

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.

Go On

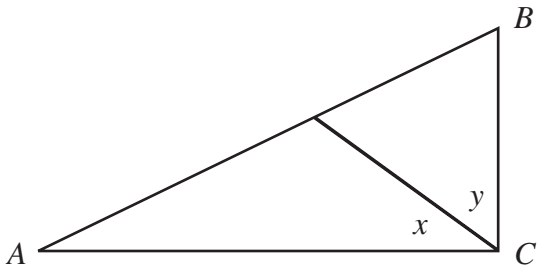
36 Ray *OA* and ray *OB* meet at the center of circle *O* to form angle *AOB*, as shown below.



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°

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

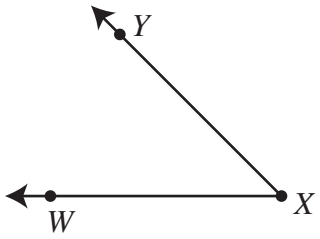


Which of these could be the measures of x and y ? Select **all** that apply.

- ☐ **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 $y = 57°$

Go On

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.



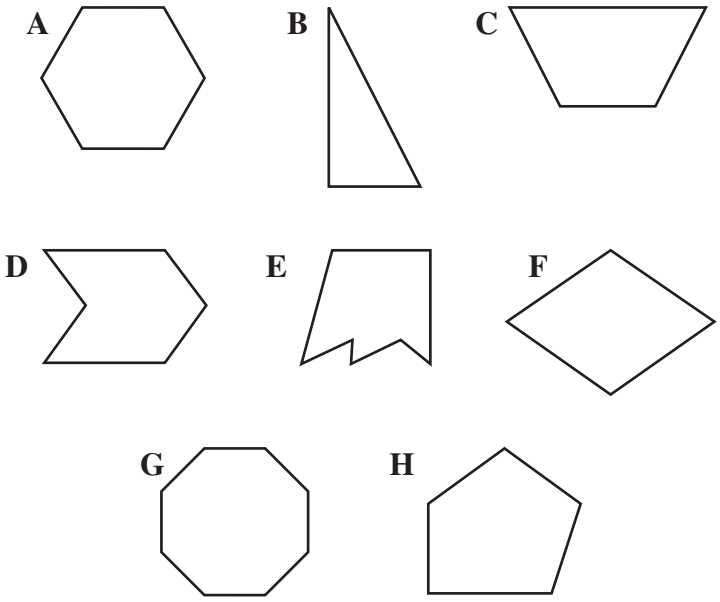
Write your response on the grid below.

STOP

Geometry

Grade 4
Student Workbook

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



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.

Go On

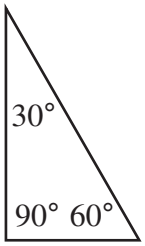
41 Angle x is labeled in the rectangle shown below.

What type of angle is angle x ?

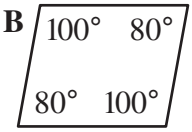
A acute
B obtuse
C parallel
D right

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

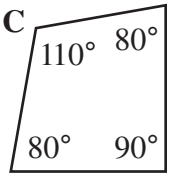
A



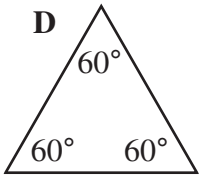
B



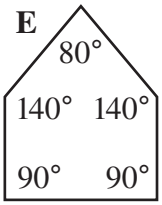
C



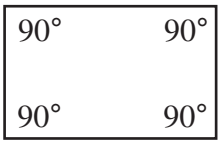
D



E

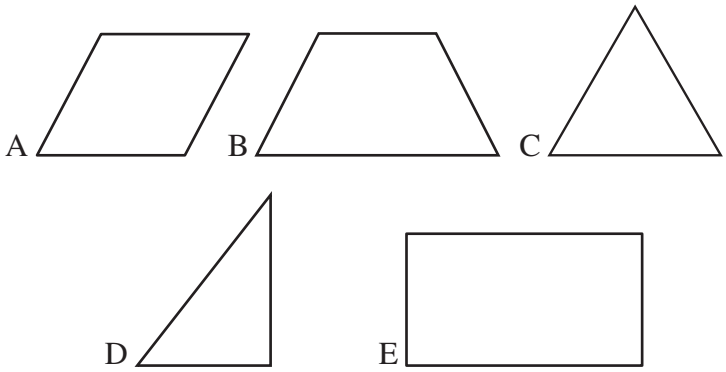


F



Go On

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.

Go On

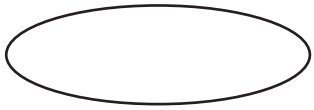
A

Shape	Parallel Sides	Perpendicular Sides
A		
B		
C		
D		
E		

B

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

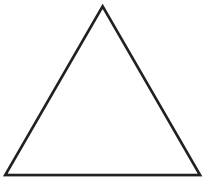
A



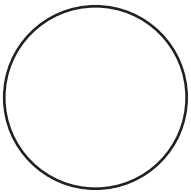
B

C

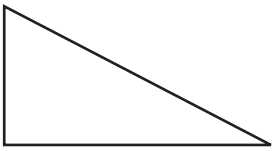
D



E

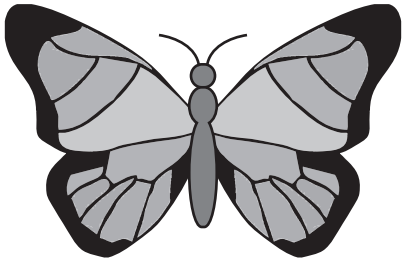


F



Go On

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.

STOP

Nevada Ready!

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