New York NYSTP 2015 Grade 5 Math

Exam & Answer Key Materials
Pages 2 - 37

engage^{ny}

Our Students. Their Moment.

New York State Testing Program
Grade 5 Common Core
Mathematics Test

Released Questions

July 2015

1 Which expression represents the phrase "4 times the sum of 9 and 6"?

A $4 \times (9 + 6)$

B $4 \times 9 + 6$

C $9 + 6 \times 4$

D $9 + (6 \times 4)$

Key: A
Primary CCLS: 5.OA,2

Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 91%

2 A water tank in the shape of a right rectangular prism is 11 feet deep. The top of the water tank has an area of 220 square feet. What is the volume, in cubic feet, of the water tank?

A 20

B 231

C 1,331

D 2,420

Key: D
Primary CCLS: 5.MD,5,b

Apply the formulas V = l × w × h and V = b × h for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 73%

3 134050406_3

Members of the Garner High School yearbook committee need to put 1,344 student photos on 24 pages in the yearbook. They want to put the same number of student photos on each page. How many student photos will they put on each page in the yearbook?

- **A** 51
- **B** 52
- **C** 56
- **D** 61

Key: C
Primary CCLS: 5.NBT,6

Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 84%

4 134040031_2

Which decimal makes the number sentence true?

$$0.27 > \underline{\quad ? \quad}$$

- **A** 0.4
- **B** 0.26
- **C** 0.3
- **D** 0.28

Key: B
Primary CCLS: 4.NF,7

Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 78%

6

Juliette made the jewelry box shown below. The jewelry box was shaped like a right rectangular prism.
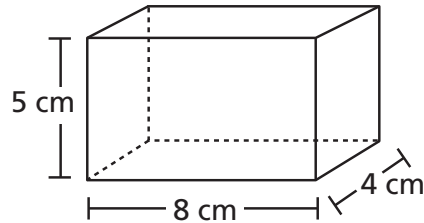
What was the volume, in cubic centimeters, of the jewelry box?

A 17

B 37

C 160

D 184

Key: C
Primary CCLS: 5.MD,5,b

Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 87%

9 The fifth-grade classes at Brookfield School used five identical buses to go on a field trip.

- There were a total of 40 seats on each bus.

- All of the seats on four buses were filled.

- The fifth bus had $\frac{4}{5}$ of the seats filled.

- $\frac{1}{8}$ of all the passengers on the buses were adults.

How many adults went on the field trip with the fifth-grade classes?

A 20

B 24

C 25

D 32

Key: B
Primary CCLS: 5.NF,6

Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 35%

10 Which expression is equivalent to 32?

A (30 + 6) ÷ 3

B 2 × (9 + 7)

C 9 × (3 + 5)

D 6 + 2 × 4

Key: B
Primary CCLS: 5.OA.1

Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 79%

13 Josie has a 1,364-page book to read over summer vacation. She wants to read the same number of pages each day for 62 days. What is the total number of pages Josie will need to read each day?

A 28

B 27

C 22

D 17

Key: C
Primary CCLS: 5.NBT.6

Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 85%

14

Equation 1: $\dfrac{3}{10} + \dfrac{15}{100} = \dfrac{18}{100}$

Equation 2: $\dfrac{4}{10} + \dfrac{32}{100} = \dfrac{72}{100}$

Equation 3: $\dfrac{7}{10} + \dfrac{2}{100} = \dfrac{27}{100}$

Equation 4: $\dfrac{6}{10} + \dfrac{27}{100} = \dfrac{87}{100}$

Which equation or equations are true?

A   equation 1 only

B   equation 2 only

C   equations 3 and 4 only

D   equations 2 and 4 only

Key: D
Primary CCLS: 4.NF,5

Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 49%

15 What is the product of $\frac{5}{8} \times \frac{3}{4}$?

A $\quad \frac{8}{32}$

B $\quad \frac{15}{32}$

C $\quad \frac{8}{12}$

D $\quad \frac{15}{12}$

Key: B
Primary CCLS: 5.NF,4,a

Interpret the product (a/b) × q as a part of a partition of q into b equal parts; equivalently, as the result of a sequence of operations a × q ÷ b. For example, use a visual fraction model to show (2/3) × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) = 8/15. (In general, (a/b) × (c/d) = ac/bd.)

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 90%

19 Barbara filled a box with layers of unit cubes. The box had a volume of 125 cubic units. Which sentence about the box **must** be true?

A There were 125 unit cubes in the bottom layer.

B The box was filled with exactly 125 unit cubes.

C There were 125 unit cubes in each layer.

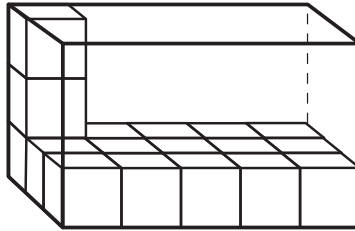D The box was filled with less than 125 unit cubes.

Key: B
Primary CCLS: 5.MD,3,b

A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.

Secondary CCLS: 5.MD,3,a
Percentage of Students Statewide Who Answered Correctly: 75%

20 Rashad is filling a toy box with wooden blocks that are each a unit cube in size. He filled the bottom layer of a toy box with 15 wooden blocks. He then stacked two more wooden blocks on top of the bottom layer. The partially filled toy box is shown below.

What was the total volume, in cubic units, of the toy box?

A 15

B 17

C 30

D 45

Key: D
Primary CCLS: 5.MD,3,b

A solid figure which can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units.

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 54%

21 Which expression represents the phrase "triple the sum of 24 and 9"?

A $3 + (24 + 9)$

B $3 \times (24 + 9)$

C $3 + 24 + 9$

D $3 \times 24 + 9$

Key: B
Primary CCLS: 5.OA.2

Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation "add 8 and 7, then multiply by 2" as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 81%

26 Which equation correctly shows the relationship between the numbers 2,560 and 256?

A $2,560 = 1,000 \times (2 + 5 + 6)$

B $2,560 = 10 \times (2 + 5 + 6)$

C $2,560 = 10 \times (200 + 50 + 6)$

D $2,560 = \frac{1}{10} \times (200 + 50 + 6)$

Key: C
Primary CCLS: 5.NBT.1

Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.

Secondary CCLS: 5.OA.1
Percentage of Students Statewide Who Answered Correctly: 78%

27 The distance from Greg's house to Tanya's house is $\frac{7}{10}$ of a mile.

Greg's house ●————————● Tanya's house

$\frac{7}{10}$ mile
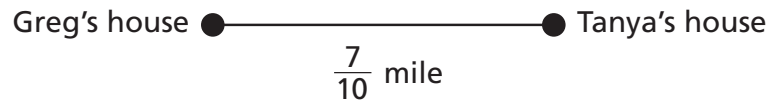
Which number correctly shows the number of miles as a decimal?

A 0.07

B 0.7

C 7.0

D 7.10

Key: B
Primary CCLS: 4.NF,6

Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 86%

28 Movie tickets cost $9.25 each and a large order of popcorn costs $7.75. What is the total cost of 5 movie tickets and a large order of popcorn?

A $22.00

B $48.00

C $54.00

D $85.00

Key: C
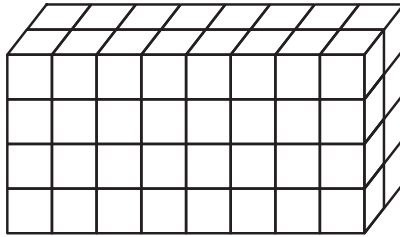**Primary CCLS: 4.MD,2**

Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 78%

30 Jack used cubes to make the right rectangular prism below.

KEY
= 1 cubic inch

He then made a smaller right rectangular prism using $\frac{1}{4}$ of the number of cubes. What was the volume, in cubic inches, of the smaller right rectangular prism?

A 8

B 13

C 16

D 64

Key: C
Primary CCLS: 5.MD,4

Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

Secondary CCLS: 5.NF,6
Percentage of Students Statewide Who Answered Correctly: 54%

37 What is the value of the expression below?

$$\frac{1}{4} \div 8$$

A $\frac{1}{32}$

B $\frac{1}{2}$

C 2

D 32

Key: A
Primary CCLS: 5.NF,7,a

Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for (1/3) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3.

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 64%

40 Nellie has a watering can that contains 20 cups of water. She pours one quart of water on each plant in her yard. If Nellie uses all of the water in the watering can, how many plants does she water?

A 4

B 5

C 10

D 80

Key: B
Primary CCLS: 5.MD,1

Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

Secondary CCLS: 5.NBT,6
Percentage of Students Statewide Who Answered Correctly: 52%

42 144050036_2

Christopher wants to buy a notebook for $2.15, a pack of glue sticks for $5.08, and a pack of pens for $3.08. What is the total cost of the three items Christopher wants to buy?

A $10.75

B $10.31

C $10.23

D $10.11

Key: B
Primary CCLS: 5.NBT,7

Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 92%

43 144050085_1

Min wants to make 100 name tags with ribbons attached to them. Each name tag requires five centimeters of ribbon. She has 3.25 meters of ribbon. Exactly how many more centimeters of ribbon does Min still need to make 100 name tags?

A 175

B 305

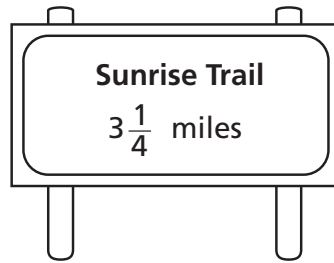**C** 325

D 825

Key: A
Primary CCLS: 5.MD,1

Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

Secondary CCLS: 5.NBT,7
Percentage of Students Statewide Who Answered Correctly: 42%

44 The sign below shows the length of a trail in a park.

What is the length, in feet, of the trail?

A 5,280

B 5,720

C 15,840

D 17,160

Key: D
Primary CCLS: 5.MD,1

Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

Secondary CCLS: 5.NF,6
Percentage of Students Statewide Who Answered Correctly: 44%

45 In a shipment of new books for a library, $\frac{5}{12}$ of the books were poetry and $\frac{2}{5}$ were biographies. The remainder of the books in the shipment were mysteries. What fraction of the books in the shipment were mysteries?

A $\frac{2}{12}$

B $\frac{11}{60}$

C $\frac{7}{17}$

D $\frac{49}{60}$

Key: B
Primary CCLS: 5.NF,2

Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 53%

47 In a math game, a player chooses two numbers, as described below.

- First number: a mixed number between 2 and 10
- Second number: 1, 2, 3, 4, or 5

Which statement describes the product of the two numbers a player chooses?

A The product must be a whole number less than the second number.

B The product must be a value less than the second number.

C The product must be a whole number greater than the second number.

D The product must be a value greater than the second number.

Key: D
Primary CCLS: 5.NF,5,a

Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 38%

50 Write two hundred three and forty-two thousandths in standard form and expanded form.

Answer standard form _____

Answer expanded form _____

Primary CCLS: 5.NBT,3,a

Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.

Secondary CCLS: None
Statewide Average Points Earned: 0.95 out of 2

50 Write two hundred three and forty-two thousandths in standard form and expanded form.

$$203.042$$

Answer standard form 203.042

Answer expanded form $(2 \times 100) + (0 \times 10) + (3 \times 1) + (0 \cdot \frac{0}{10}) + (4 \cdot \frac{1}{100}) + (2 \cdot \frac{1}{1000})$

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The response provides the correct standard form answer (203.042) and a correct expanded form answer $[(2 \times 100) + (0 \times 10) + (3 \times 1) + (0 \times {}^{0}/_{10}) + (4 \times {}^{1}/_{100}) + (2 \times {}^{1}/_{1000})]$. Because students are not directed to show work, any work shown will not be scored, per Scoring Policy 11.

51 Tony began putting together a rectangular puzzle. He completed the top edge and left

edge of the puzzle, as shown below. Each piece is a square that has a side length of
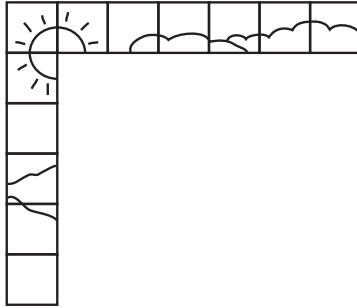
$2\frac{1}{2}$ centimeters.

What is the total area, in square centimeters, of the completed puzzle?

Show your work.

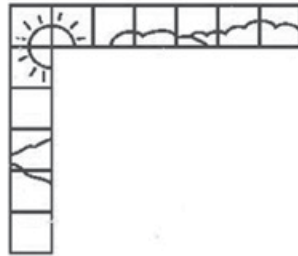***Answer*** _____ square centimeters

Primary CCLS: 5.NF,4,b

Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.

Secondary CCLS: 5.NF,4,a
Statewide Average Points Earned: 0.53 out of 2

51 Tony began putting together a rectangular puzzle. He completed the top edge and left edge of the puzzle, as shown below. Each piece is a square that has a side length of $2\frac{1}{2}$ centimeters.

What is the total area, in square centimeters, of the completed puzzle?

Show your work.

$7 \times 2\frac{1}{2}$ $6 \times 2\frac{1}{2}$

$14 + 3\frac{1}{2} = 17\frac{1}{2}$ 15

17.50
$\times 15.00$
8750000
$+17500000$
26250000

Answer $262\frac{1}{2}$ square centimeters

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The response shows work for finding the length ($17\frac{1}{2}$) and width (15) of the puzzle in square centimeters. The products are then multiplied together to find the correct total area ($262\frac{1}{2}$) of the completed puzzle.

52 Four classmates were asked to decorate $\frac{1}{5}$ of the bulletin board in a classroom. They divided the section to be decorated equally among the 4 classmates. What fraction of the entire bulletin board did each classmate decorate?

Show your work.

Answer _____

Primary CCLS: 5.NF,7,a

Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for (1/3) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3.

Secondary CCLS: None
Statewide Average Points Earned: 1.03 out of 2

52 Four classmates were asked to decorate $\frac{1}{5}$ of the bulletin board in a classroom. They divided the section to be decorated equally among the 4 classmates. What fraction of the entire bulletin board did each classmate decorate?

Show your work.

4 - asked to decorate $\frac{1}{5}$ of the bulletin board

$\frac{1}{5}$ equally among 4 classmate

$\frac{1}{5} \div \frac{4}{1}$

$\frac{1}{5} \times \frac{1}{4} = \frac{1}{20}$

Answer $\frac{1}{20}$

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The response shows the correct division ($^1/_5 \div 4$) to determine the fraction of the bulletin board. The response then shows an equivalent equation, multiplying the dividend by the reciprocal of the divisor ($^1/_5 \times ^1/_4$), to determine the correct answer ($^1/_{20}$).

53   The list below shows the numbers of miles John biked each day for 12 days.

$$6\frac{3}{4}, \ 7, \ 6\frac{1}{2}, \ 6\frac{3}{4}, \ 7\frac{1}{4}, \ 7, \ 7\frac{1}{2}, \ 6\frac{3}{4}, \ 7\frac{1}{2}, \ 6\frac{3}{4}, \ 6\frac{1}{2}, \ 7\frac{3}{4}$$

Make a line plot of the data using the line below. Include a title and correct labels.

Primary CCLS: 5.MD,2

Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.
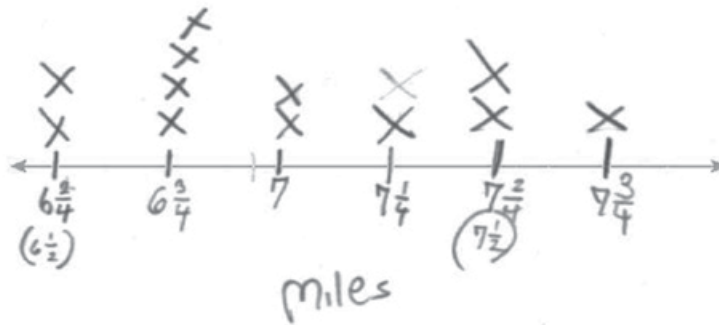
Secondary CCLS: None
Statewide Average Points Earned: 0.92 out of 2

53 The list below shows the numbers of miles John biked each day for 12 days.

$6\frac{2}{4}$, $6\frac{1}{2}$, $6\frac{3}{4}$, $7\frac{1}{4}$, 7, $7\frac{1}{2}$, $6\frac{3}{4}$, $7\frac{1}{4}$, $6\frac{3}{4}$, $6\frac{1}{2}$, $7\frac{3}{4}$, 7

Make a line plot of the data using the line below. Include a title and correct labels.

MILES John Biked

miles

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The response shows a correct title (Miles John Biked), the line is labeled appropriately and all data is plotted correctly. The extraneous labels below $6\frac{2}{4}$ and $7\frac{2}{4}$ do not detract from a demonstration of through understanding.

54   Bella has 6.3 kilograms of berries. She packs 0.35 kilogram of berries into each container. She then sells each container for $2.99. How much money will Bella earn if she sells all the containers?

Show your work.

Answer $_____

Primary CCLS: 5.NBT,7

Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

Secondary CCLS: None

Statewide Average Points Earned: 0.67 out of 2

54 Bella has 6.3 kilograms of berries. She packs 0.35 kilogram of berries into each container. She then sells each container for $2.99. How much money will Bella earn if she sells all the containers?

Show your work.

$$0.35)\overline{6.300} \quad \text{18 containers}$$

$$\begin{array}{r} 0.35)\overline{6.300} \\ -35 \\ \hline 280 \\ -280 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 35 \\ \times\ 2 \\ \hline 70 \end{array} \qquad \begin{array}{r} 35 \\ \times\ 5 \\ \hline 170 \end{array}$$

$$\begin{array}{r} 35 \\ \times\ 8 \\ \hline 280 \end{array}$$

$$\begin{array}{r} 2.99 \\ 18 \\ \times \\ \hline 2392 \\ +\ 2990 \\ \hline 5382 \end{array}$$

Answer $ 53.82

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The response shows the correct division process for finding the total number of containers needed to pack all of the berries (6.3 ÷ 0.35 = 18) and the correct multiplication process to determine the correct total cost of all the containers (2.99 × 18 = 53.82).

55 Eli lives $3\frac{3}{4}$ miles from the library.
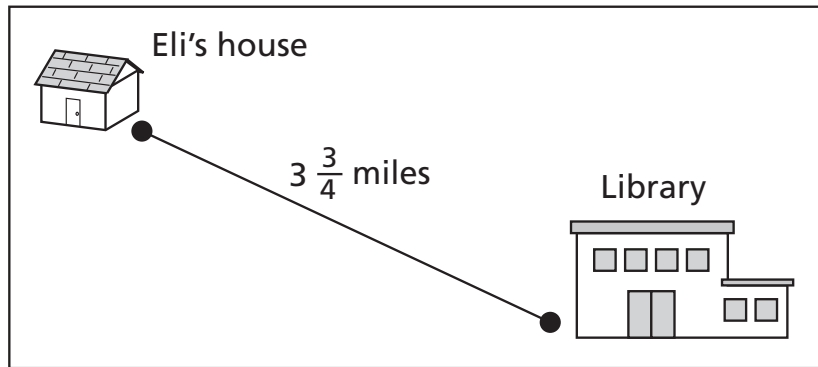
He decided to bike from his home to the library to return some books. Eli biked $1\frac{1}{10}$ miles when he remembered that he had left a book at home, so he biked back home to get it. After getting the book from home, he biked to the library. What was the total distance, in miles, Eli had biked when he finally reached the library?

Show your work.

Answer _____ miles

Primary CCLS: 5.NF,2

Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.

Secondary CCLS: None
Statewide Average Points Earned: 0.89 out of 2
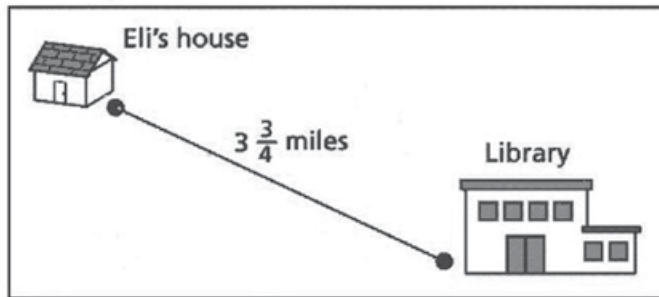
55 Eli lives $3\frac{3}{4}$ miles from the library.

He decided to bike from his home to the library to return some books. Eli biked $1\frac{1}{10}$ miles when he remembered that he had left a book at home, so he biked back home to get it. After getting the book from home, he biked to the library. What was the total distance, in miles, Eli had biked when he finally reached the library?

Show your work.

$$1\frac{1}{10}$$
$$+ 1\frac{1}{10}$$
$$\overline{}$$
$$2\frac{2}{10}$$

$$2\frac{2}{10} \quad \frac{4}{20}$$
$$3\frac{3}{4} \quad \frac{15}{20}$$
$$\overline{}$$
$$5\frac{19}{20}$$

Answer $5\frac{19}{20}$ miles

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. This response shows the correct addition of the three mixed numbers with a common denominator ($1^1/_{10} + 1^1/_{10} = 2^2/_{10}$; $2^2/_{10} + 3^3/_4 = 2^4/_{20} + 3^{15}/_{20}$) to find the correct distance biked ($5^{19}/_{20}$).

57 There are 12 players on a new softball team. Before the team starts playing games, the team must pay a total registration fee of $572. Along with the registration fee, the team will also need to spend a total of $1,240 on equipment.

To pay for the cost of the registration fee and the equipment, the players held a car wash and raised $786. They then decided to sell candles for $9.50 per candle to cover the remaining costs. If each player sells the same number of candles, how many candles must each player sell?

Show your work.

Answer _____ candles

Primary CCLS: 5.NBT,6

Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Secondary CCLS: 5.NBT,7
Statewide Average Points Earned: 0.84 out of 3

57 There are 12 players on a new softball team. Before the team starts playing games, the team must pay a total registration fee of $572. Along with the registration fee, the team will also need to spend a total of $1,240 on equipment.

To pay for the cost of the registration fee and the equipment, the players held a car wash and raised $786. They then decided to sell candles for $9.50 per candle to cover the remaining costs. If each player sells the same number of candles, how many candles must each player sell?

Show your work.

```
  ①
   1240            1,8122          9.50)1,0260⟩
 +  572          -  786
 $1,812          $1,026
                                        108
                                   95)1,0260.
                                     - 95
                                       76
                                      - 0
                                      -160
                                      160
                                        0
                                           9
                                      12)108
```

Answer _____9_____ candles

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the concepts in the task. This response shows correct addition of the registration fee and equipment cost (1240 + 572) and the subtraction of the money made from the car wash (1,812 – 786) to find the amount needed to cover the remaining cost ($1,026). Then, the correct cost is divided by the cost of one candle (1,026 ÷ 9.50) to find the correct total number of candles that need to be sold (108). This total is then divided by the number of players (108 ÷ 12) to find the correct number of candles (9) that need to be sold by each player.

59 Hank and Debra each own two milking cows. One day, they milked their cows and compared the amount of milk the cows produced in that one day.

COW MILK PRODUCED

	Type of Cow	
	Jersey	**Holstein**
Hank's Cows (gallons of milk)	$4\frac{3}{4}$	$4\frac{1}{8}$
Debra's Cows (gallons of milk)	$5\frac{1}{2}$	$5\frac{2}{3}$

How many more gallons of milk did Debra's two cows produce on that day compared to Hank's two cows?

Show your work.

Answer _____ gallons

Primary CCLS: 5.NF,2

Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.

Secondary CCLS: None
Statewide Average Points Earned: 1.43 out of 3

59 Hank and Debra each own two milking cows. One day, they milked their cows and compared the amount of milk the cows produced in that one day.

COW MILK PRODUCED

	Type of Cow	
	Jersey	Holstein
Hank's Cows (gallons of milk)	$4\frac{3}{4}$	$4\frac{1}{8}$
Debra's Cows (gallons of milk)	$5\frac{1}{2}$	$5\frac{2}{3}$

How many more gallons of milk did Debra's two cows produce on that day compared to Hank's two cows?

Show your work.

$$5\frac{1}{2} \quad 5\frac{3}{6}$$
$$+5\frac{2}{3} = 5\frac{4}{6}$$
$$10\frac{7}{6} = 11\frac{1}{6}$$

$$4\frac{3}{4} = 4\frac{6}{8} \qquad 11\frac{1}{6} \; 11\frac{28}{24}$$
$$+4\frac{1}{8} = 4\frac{1}{8} \qquad -8\frac{7}{8} = 8\frac{21}{24}$$
$$8\frac{7}{8} \qquad\qquad 2\frac{7}{24}$$

Answer _____ $2\frac{7}{24}$ _____ gallons

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the concepts in the task. The response shows work for finding the correct total amount of milk produced by Hank's cows ($4^6/_8 + 4^1/_8 = 8^7/_8$) by adding the amounts together after converting the fractions in the mixed numbers to equivalent fractions with common denominators. The same process is used to find the correct total amount of milk produced by Debra's cows ($5^3/_6 + 5^4/_6 = 10^7/_6 = 11^1/_6$). Hank's total is subtracted from Debra's total after converting the fractions in the mixed numbers to equivalent fractions with common denominators ($10^{28}/_{24} - 8^{21}/_{24}$), and a correct answer ($2^7/_{24}$) is determined.

2-Point Holistic Rubric

Score Points:

2 Points	A two-point response includes the correct solution to the question and demonstrates a thorough understanding of the mathematical concepts and/or procedures in the task. This response • indicates that the student has completed the task correctly, using mathematically sound procedures • contains sufficient work to demonstrate a thorough understanding of the mathematical concepts and/or procedures • may contain inconsequential errors that do not detract from the correct solution and the demonstration of a thorough understanding
1 Point	A one-point response demonstrates only a partial understanding of the mathematical concepts and/or procedures in the task. This response • correctly addresses only some elements of the task • may contain an incorrect solution but applies a mathematically appropriate process • may contain the correct solution but required work is incomplete
0 Points*	A zero-point response is incorrect, irrelevant, incoherent, or contains a correct solution obtained using an obviously incorrect procedure. Although some elements may contain correct mathematical procedures, holistically they are not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.

* Condition Code A is applied whenever a student who is present for a test session leaves an entire constructed-response question in that session completely blank (no response attempted).

3-Point Holistic Rubric

Score Points:

3 Points	A three-point response includes the correct solution(s) to the question and demonstrates a thorough understanding of the mathematical concepts and/or procedures in the task. This response • indicates that the student has completed the task correctly, using mathematically sound procedures • contains sufficient work to demonstrate a thorough understanding of the mathematical concepts and/or procedures • may contain inconsequential errors that do not detract from the correct solution(s) and the demonstration of a thorough understanding
2 Points	A two-point response demonstrates a partial understanding of the mathematical concepts and/or procedures in the task. This response • appropriately addresses most, but not all, aspects of the task using mathematically sound procedures • may contain an incorrect solution but provides sound procedures, reasoning, and/or explanations • may reflect some minor misunderstanding of the underlying mathematical concepts and/or procedures
1 Point	A one-point response demonstrates only a limited understanding of the mathematical concepts and/or procedures in the task. This response • may address some elements of the task correctly but reaches an inadequate solution and/or provides reasoning that is faulty or incomplete • exhibits multiple flaws related to misunderstanding of important aspects of the task, misuse of mathematical procedures, or faulty mathematical reasoning • reflects a lack of essential understanding of the underlying mathematical concepts • may contain the correct solution(s) but required work is limited
0 Points*	A zero-point response is incorrect, irrelevant, incoherent, or contains a correct solution obtained using an obviously incorrect procedure. Although some elements may contain correct mathematical procedures, holistically they are not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.

* Condition Code A is applied whenever a student who is present for a test session leaves an entire constructed-response question in that session completely blank (no response attempted).

2015 2- and 3-Point Mathematics Scoring Policies

Below are the policies to be followed while scoring the mathematics tests for all grades:

1. If a student does the work in other than a designated "Show your work" area, that work should still be scored. (Additional paper is an allowable accommodation for a student with disabilities if indicated on the student's Individual Education Program or Section 504 Accommodation Plan.)

2. If the question requires students to show their work, and the student shows appropriate work and clearly identifies a correct answer but fails to write that answer in the answer blank, the student should still receive full credit.

3. In questions that provide ruled lines for students to write an explanation of their work, mathematical work shown elsewhere on the page should be considered and scored.

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

5. If the student has written more than one response but has crossed some out, teachers should score only the response that has **not** been crossed out.

6. Trial-and-error responses are **not** subject to Scoring Policy #5 above, since crossing out is part of the trial-and-error process.

7. If a response shows repeated occurrences of the same conceptual error within a question, the student should **not** be penalized more than once.

8. In questions that require students to provide bar graphs,

   - in Grades 3 and 4 only, touching bars are acceptable
   - in Grades 3 and 4 only, space between bars does **not** need to be uniform
   - in all grades, widths of the bars must be consistent
   - in all grades, bars must be aligned with their labels
   - in all grades, scales must begin at 0, but the 0 does **not** need to be written

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

10. In pictographs, the student is permitted to use a symbol other than the one in the key, provided that the symbol is used consistently in the pictograph; the student does not need to change the symbol in the key. The student may **not**, however, use multiple symbols within the chart, nor may the student change the value of the symbol in the key.

11. If students are not directed to show work, any work shown will not be scored. This applies to items that do not ask for any work and items that ask for work for one part and do not ask for work in another part.

12. Condition Code A is applied whenever a student who is present for a test session leaves an entire constructed-response question in that session completely blank (no response attempted). This is not to be confused with a score of zero wherein the student does respond to part or all of the question but that work results in a score of zero.