

New York NYSTP 2015 Grade 4 Math  
Exam & Answer Key Materials  
Pages 2 - 40



Our Students. Their Moment.

**New York State Testing Program  
Grade 4 Common Core  
Mathematics Test**

**Released Questions**

**July 2015**

**1**

Which number sentence is true?

**A**     $376,425 > 367,419$

**B**     $337,425 > 337,524$

**C**     $336,425 < 335,426$

**D**     $327,425 < 327,416$

**Key: A**

**Primary CCLS: 4.NBT,2**

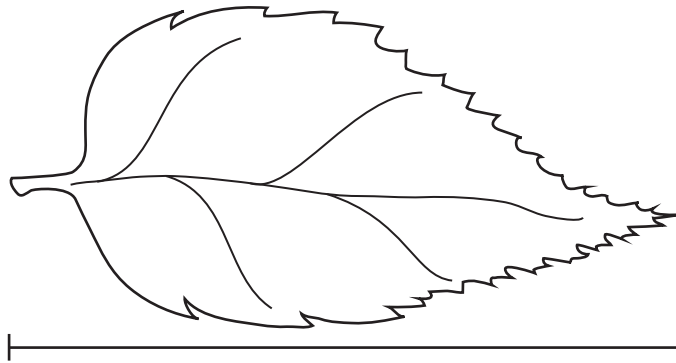
Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons.

**Secondary CCLS: None**

**Percentage of Students Statewide Who Answered Correctly: 89%**

**2**

Taylor is measuring leaves for an art project.



What is the length of this leaf?

- A**  $3\frac{1}{4}$  inches
- B**  $3\frac{1}{2}$  inches
- C**  $4\frac{1}{4}$  inches
- D**  $4\frac{1}{2}$  inches

**Key: B**

**Primary CCLS: 3.MD,4**

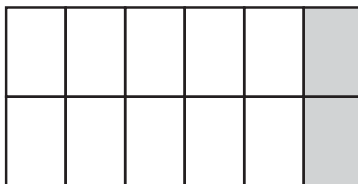
Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.

**Secondary CCLS: None**

**Percentage of Students Statewide Who Answered Correctly: 75%**

**3**

Ryan folded a sheet of paper to make 12 equal-sized sections. He shaded 2 sections, as shown below.



Which fraction is equivalent to the one represented by the shaded part of the sheet of paper?

**A**  $\frac{1}{12}$

**B**  $\frac{1}{6}$

**C**  $\frac{1}{5}$

**D**  $\frac{6}{5}$

**Key: B**

**Primary CCLS: 4.NF.1**

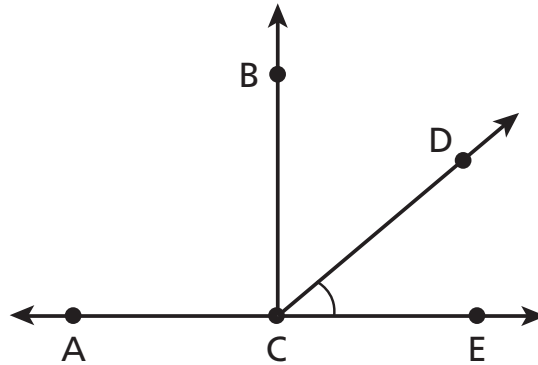
Explain why a fraction  $a/b$  is equivalent to a fraction  $(n \times a)/(n \times b)$  by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

**Secondary CCLS: None**

**Percentage of Students Statewide Who Answered Correctly: 76%**

**4**

What is the measure of angle DCE?



- A**  $40^\circ$
- B**  $50^\circ$
- C**  $90^\circ$
- D**  $130^\circ$

**Key: A****Primary CCLS: 4.MD.6**

Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

**Secondary CCLS: None****Percentage of Students Statewide Who Answered Correctly: 75%**

134040012\_1

5

Estelle had 28 coins in her collection. Fred had 4 times as many coins as Estelle had. Which equation can be used to determine the number of coins Fred had?

A  $28 \times 4 = \underline{\quad? \quad}$

B  $28 \div 4 = \underline{\quad? \quad}$

C  $28 + 4 = \underline{\quad? \quad}$

D  $28 - 4 = \underline{\quad? \quad}$

**Key: A**

**Primary CCLS: 4.OA,1**

Interpret a multiplication equation as a comparison, e.g., interpret  $35 = 5 \times 7$  as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.

**Secondary CCLS: None**

**Percentage of Students Statewide Who Answered Correctly: 88%**

134040046\_2

9

Which number would be 16,000 when rounded to the nearest thousand?

A 15,472

B 15,518

C 16,511

D 16,739

**Key: B**

**Primary CCLS: 4.NBT,3**

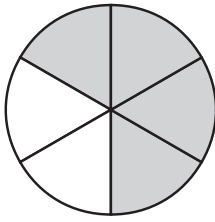
Use place value understanding to round multi-digit whole numbers to any place.

**Secondary CCLS: None**

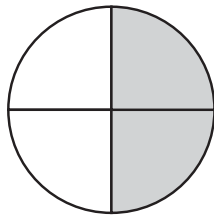
**Percentage of Students Statewide Who Answered Correctly: 66%**

**11**

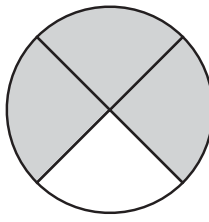
Students shaded the shapes below to represent fractions.



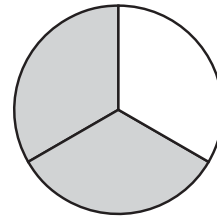
Britney



Keisha



Ivan



Walter

Which two students' shapes represent equivalent fractions?

- A** Britney's fraction is equivalent to Walter's fraction.
- B** Keisha's fraction is equivalent to Walter's fraction.
- C** Ivan's fraction is equivalent to Keisha's fraction.
- D** Ivan's fraction is equivalent to Britney's fraction.

**Key: A**

**Primary CCLS: 4.NF.1**

Explain why a fraction  $a/b$  is equivalent to a fraction  $(n \times a)/(n \times b)$  by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

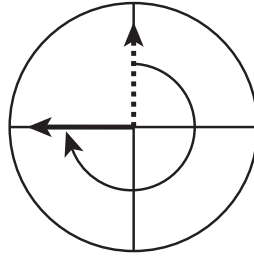
**Secondary CCLS: None**

**Percentage of Students Statewide Who Answered Correctly: 68%**



**14**

Carolina moved the hand of a spinner 270 degrees, as shown below.



What fraction of a complete turn through a circle is 270 degrees?

- A  $\frac{3}{360}$
- B  $\frac{27}{360}$
- C  $\frac{90}{360}$
- D  $\frac{270}{360}$

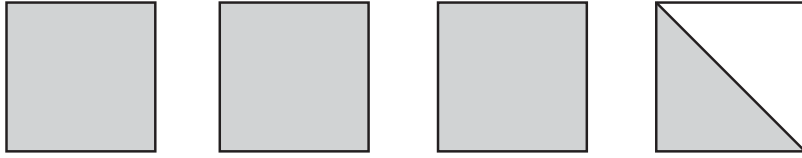
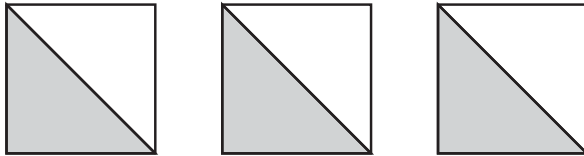
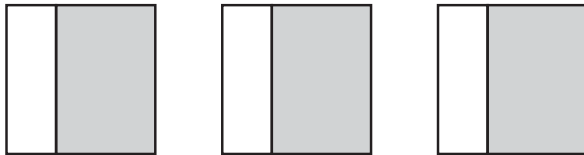
**Key: D**

**Primary CCLS: 4.MD,5,a**

An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through  $\frac{1}{360}$  of a circle is called a "one-degree angle," and can be used to measure angles.

**Secondary CCLS: None**

**Percentage of Students Statewide Who Answered Correctly: 57%**

**17**Which model represents  $3 \times \frac{1}{2}$ ?**A****B****C****D****Key: B****Primary CCLS: 4.NF,4,a**Understand a fraction  $a/b$  as a multiple of  $1/b$ .For example, use a visual fraction model to represent  $5/4$  as the product  $5 \times (1/4)$ , recording the conclusion by the equation  $5/4 = 5 \times (1/4)$ .**Secondary CCLS: None****Percentage of Students Statewide Who Answered Correctly: 50%**

134040408\_3

**19**

What is the missing number in the equation below?

$$5,600 \div 8 = \underline{\quad ? \quad}$$

- A** 7
- B** 70
- C** 700
- D** 7,000

**Key: C****Primary CCLS: 4.NBT,6**

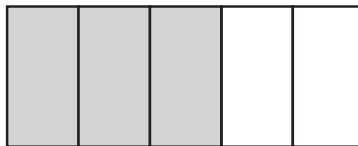
Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays,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

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

134040047\_2

**28**

Which expression represents the amount of the fraction strip below that is shaded?



- A**  $\frac{1}{5} + \frac{1}{5}$
- B**  $\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$
- C**  $\frac{3}{5} + \frac{3}{5} + \frac{3}{5}$
- D**  $\frac{3}{5} + \frac{2}{5}$

**Key: B**

**Primary CCLS: 4.NF,3,a**

Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.

**Secondary CCLS: None**

**Percentage of Students Statewide Who Answered Correctly: 85%**

134040053\_4

**29**

Rose uses instant lemonade powder to make 7 pitchers of lemonade. She uses  $\frac{2}{8}$  cup of powder for each pitcher. What is the total amount of powder that Rose uses?

**A**  $\frac{2}{56}$  cups

**B**  $\frac{14}{56}$  cups

**C**  $\frac{9}{8}$  cups

**D**  $\frac{14}{8}$  cups

**Key: D**

**Primary CCLS: 4.NF,4,c**

Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.

For example, if each person at a party will eat  $\frac{3}{8}$  of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?

**Secondary CCLS: None**

**Percentage of Students Statewide Who Answered Correctly: 68%**

134040059\_2

**32**

A store ordered 28 boxes holding 12 banana muffins each and 5 boxes holding 6 blueberry muffins each. What was the total number of muffins the store ordered?

- A** 51
- B** 366
- C** 440
- D** 10,080

**Key: B**

**Primary CCLS: 4.NBT,5**

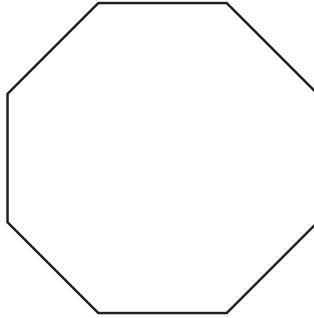
Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

**Secondary CCLS: 4.OA,3**

**Percentage of Students Statewide Who Answered Correctly: 68%**

**33**

Which statement **best** classifies the figure below?



- A** The figure has opposite sides that are perpendicular and angles that measure  $135^\circ$ .
- B** The figure has opposite sides that are perpendicular and angles that measure  $45^\circ$ .
- C** The figure has opposite sides that are parallel and angles that measure  $135^\circ$ .
- D** The figure has opposite sides that are parallel and angles that measure  $45^\circ$ .

**Key: C**

**Primary CCLS: 4.G.2**

Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

**Secondary CCLS: None**

**Percentage of Students Statewide Who Answered Correctly: 45%**

**37**

The price of a board game is \$24. The price of the board game is 2 times as much as the price of a jigsaw puzzle. What is the price of the jigsaw puzzle?

- A** \$12
- B** \$22
- C** \$26
- D** \$48

**Key: A**

**Primary CCLS: 4.OA,2**

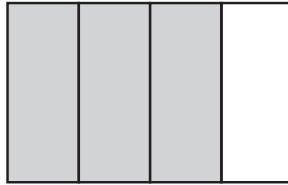
Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

**Secondary CCLS: None**

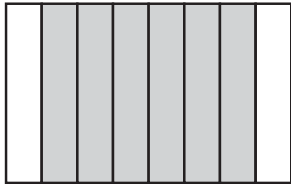
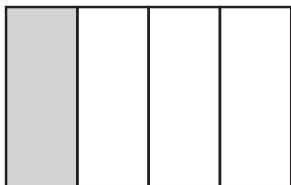
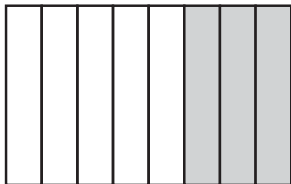
**Percentage of Students Statewide Who Answered Correctly: 45%**

**38**

The model below is shaded to represent a fraction.



Which figure is shaded to show a fraction equivalent to the model?

**A****B****C****D****Key: A****Primary CCLS: 4.NF.1**

Explain why a fraction  $a/b$  is equivalent to a fraction  $(n \times a)/(n \times b)$  by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

**Secondary CCLS: None****Percentage of Students Statewide Who Answered Correctly: 65%**



144040023\_1

**39**

The value of the 7 in 507,264 is 10 times the value of the 7 in which number?

- A** 493,725
- B** 587,921
- C** 672,439
- D** 714,093

**Key: A**

**Primary CCLS: 4.NBT,1**

Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. For example, recognize that  $700 \div 70 = 10$  by applying concepts of place value and division.

**Secondary CCLS: None**

**Percentage of Students Statewide Who Answered Correctly: 51%**

144040038\_4

**42**

A gardener ordered 46 flowering bushes to plant in a park. Each bush cost \$27. What was the total cost of the bushes?

- A** \$1,102
- B** \$1,142
- C** \$1,202
- D** \$1,242

**Key: D**

**Primary CCLS: 4.NBT,5**

Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

**Secondary CCLS: None**

**Percentage of Students Statewide Who Answered Correctly: 67%**

144040087\_4

**43**

Dennis wants to buy carpet for the rectangular floor of his living room. The room is 12 feet long and 16 feet wide. What is the area, in square feet, of the living room floor?

- A** 28
- B** 56
- C** 182
- D** 192

**Key: D**

**Primary CCLS: 4.MD,3**

Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.

**Secondary CCLS: None**

**Percentage of Students Statewide Who Answered Correctly: 58%**

134040077\_2

**45**

A rectangle has a width of 9 inches. The area of the rectangle is 648 square inches. What is the length, in inches, of the rectangle?

- A** 36
- B** 72
- C** 162
- D** 315

**Key: B**

**Primary CCLS: 4.MD,3**

Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.

**Secondary CCLS: None**

**Percentage of Students Statewide Who Answered Correctly: 62%**

**47**

The number below has the digit 6 in two different places.

916,672

How many times greater is the value represented by the 6 in the thousands place than the value represented by the 6 in the hundreds place?

- A** 10
- B** 100
- C** 1,000
- D** 10,000

**Key: A**

**Primary CCLS: 4.NBT,1**

Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. For example, recognize that  $700 \div 70 = 10$  by applying concepts of place value and division.

**Secondary CCLS: None**

**Percentage of Students Statewide Who Answered Correctly: 56%**

**51**

A cargo ship is carrying nine shipping crates. Each crate is equal in mass, and the total mass of all nine crates is 4,707 kilograms. What is the mass, in kilograms, of each crate?

***Show your work.***

***Answer*** \_\_\_\_\_ kilograms

**Primary CCLS: 4.NBT,6**

Find whole-number quotients and remainders with up to four-digit dividends and one-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**

**Statewide Average Points Earned: 1.15 out of 2**

51

A cargo ship is carrying nine shipping crates. Each crate is equal in mass, and the total mass of all nine crates is 4,707 kilograms. What is the mass, in kilograms, of each crate?

**Show your work.**



all 9 crates total 4,707 kilograms

$$4707 \div 9 = 523 \text{ kilogram}$$

$$523 \times 9 = 4707 \text{ kilogram}$$

$$\begin{array}{r} 523 \\ 9 \overline{) 4707} \\ \underline{45} \phantom{00} \\ 20 \phantom{00} \\ \underline{18} \phantom{00} \\ 27 \phantom{00} \\ \underline{27} \phantom{00} \\ 00 \end{array}$$

Answer 523 kilograms

$$\begin{array}{r} 523 \\ \times 9 \\ \hline 4707 \end{array} \text{ kilogram}$$

### Score Point 2 (out of 2 points)

This response contains the correct solution (523) and demonstrates a thorough understanding of the mathematical concepts in the task. Long division is used to divide the total mass of the crates by the total number of crates shipped to find the mass of each crate. In addition, a visual representation shows nine equal groups of 523, and multiplication ( $523 \times 9$ ) is used to check the division. The task has been completed correctly using mathematically sound procedures.

**52**

Madelyn uses 58 beads to make a necklace. She plans to sell 36 necklaces at each craft fair she goes to this summer. She plans to go to 4 craft fairs this summer. What is the total number of beads that Madelyn will use to make the necklaces she plans to sell at the 4 craft fairs?

***Show your work.***

***Answer*** \_\_\_\_\_ beads

**Primary CCLS: 4.NBT,5**

Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

**Secondary CCLS: None**

**Statewide Average Points Earned: 0.76 out of 2**

52

Madelyn uses 58 beads to make a necklace. She plans to sell 36 necklaces at each craft fair she goes to this summer. She plans to go to 4 craft fairs this summer. What is the total number of beads that Madelyn will use to make the necklaces she plans to sell at the 4 craft fairs?

**Show your work.**

$$\begin{array}{r}
 +2 \\
 74 \overline{) 58} \\
 \times 36 \\
 \hline
 348 \\
 +1740 \\
 \hline
 2,088
 \end{array}$$

$$\begin{array}{r}
 +2 \\
 2,088 \\
 \times \quad 4 \\
 \hline
 8,352
 \end{array}$$

**Answer** 8,352 beads

### Score Point 2 (out of 2 points)

This response contains the correct solution (8,352) and demonstrates a thorough understanding of the mathematical concepts in the task. The number of beads Madelyn uses in each necklace is multiplied by the number of necklaces she will sell at each fair, and that product is then multiplied by the number of fairs she will attend over the summer. The task has been completed correctly using mathematically sound procedures.

**53**

Draw an obtuse angle.

What is the measure, in degrees, of the angle you drew?

**Answer** \_\_\_\_\_ degrees**Primary CCLS: 4.G.1**

Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

**Secondary CCLS: None****Statewide Average Points Earned: 1.49 out of 2**



53

Draw an obtuse angle.



What is the measure, in degrees, of the angle you drew?

Answer 120 degrees

**Score Point 2 (out of 2 points)**

This response contains correct solutions and demonstrates a thorough understanding of the mathematical concepts in the task. An appropriate drawing of an obtuse angle is provided, and the measurement recorded ( $120^\circ$ ) is well within the  $\pm 5^\circ$  of the true measure of the drawn angle. The task has been completed correctly using mathematically sound procedures.

**54**

There were 820,445 people living in Indianapolis and 805,235 people living in San Francisco at the time of the last census. Use  $>$ ,  $<$ , or  $=$  to compare these numbers.

**Answer** \_\_\_\_\_

Write 820,445 in expanded form.

**Answer** \_\_\_\_\_

**Primary CCLS: 4.NBT,2**

Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons.

**Secondary CCLS: None**

**Statewide Average Points Earned: 1.61 out of 2**

There were 820,445 people living in Indianapolis and 805,235 people living in San Francisco at the time of the last census. Use  $>$ ,  $<$ , or  $=$  to compare these numbers.

$$820,445 \text{ ( ? ) } 805,235$$

$$820,445 \text{ ( > ) } 805,235$$

Answer 820,445 > 805,235

Write 820,445 in expanded form.

Answer  $800,000 + 20,000 + 400 + 40 + 5$

### Score Point 2 (out of 2 points)

This response contains the correct solutions and demonstrates a thorough understanding of the mathematical concepts in the task. Both the expression comparing the populations of Indianapolis and San Francisco ( $820,445 > 805,235$ ) and the expanded form of the population of Indianapolis ( $800,000 + 20,000 + 400 + 40 + 5$ ) are correct. The task has been completed correctly using mathematically sound procedures.

**55**

A chef mixed olive oil and vinegar to make salad dressing. She made enough salad dressing to fill six plastic bottles, using  $\frac{4}{8}$  cup of olive oil and  $\frac{2}{8}$  cup of vinegar for each bottle. What was the total amount, in cups, of salad dressing the chef made?

***Show your work.***

***Answer*** \_\_\_\_\_ cups

**Primary CCLS: 4.NF,4,c**

Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.

For example, if each person at a party will eat  $\frac{3}{8}$  of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?

**Secondary CCLS: 4.NF,3,a**

**Statewide Average Points Earned: 0.74 out of 2**

55

A chef mixed olive oil and vinegar to make salad dressing. She made enough salad dressing to fill six plastic bottles, using  $\frac{4}{8}$  cup of olive oil and  $\frac{2}{8}$  cup of vinegar for each bottle. What was the total amount, in cups, of salad dressing the chef made?

**Show your work.**

$$\begin{array}{l}
 6 \times \frac{4}{8} = \frac{24}{8} = 3 \\
 6 \times \frac{2}{8} = \frac{12}{8} = 1\frac{4}{8}
 \end{array}
 \quad
 \begin{array}{r}
 3 \\
 1\frac{4}{8} \\
 \hline
 4\frac{4}{8}
 \end{array}$$

**Answer**  $4\frac{4}{8}$  cups

### Score Point 2 (out of 2 points)

This response contains the correct solution ( $4\frac{4}{8}$ ) and demonstrates a thorough understanding of the mathematical concepts in the task. The total number of bottles to fill with salad dressing (6) is first multiplied by the amount of olive oil needed for each bottle ( $6 \times \frac{4}{8} = \frac{24}{8} = 3$ ) then multiplied by the amount of vinegar needed for each ( $6 \times \frac{2}{8} = \frac{12}{8} = 1\frac{4}{8}$ ). Finally, the products of each are added to calculate the correct solution ( $3 + 1\frac{4}{8} = 4\frac{4}{8}$ ). The task has been completed correctly using mathematically sound procedures.

**56**

A work crew spent four days paving a stretch of road. The table below shows the length of road paved each day.

**ROAD PAVING**

Day	Length (miles)
Monday	$5\frac{5}{6}$
Tuesday	$6\frac{3}{6}$
Wednesday	$8\frac{4}{6}$
Thursday	$4\frac{1}{6}$

The entire length of the road will be 27 miles. What is the total remaining length of road that needs to be paved after the four days?

**Show your work.**

**Answer** \_\_\_\_\_ miles

**Primary CCLS: 4.NF,3,c**

Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.

**Secondary CCLS: 4.NF,3,d**

**Statewide Average Points Earned: 1.09 out of 3**

A work crew spent four days paving a stretch of road. The table below shows the length of road paved each day.

### ROAD PAVING

Day	Length (miles)
Monday	$5\frac{5}{6}$
Tuesday	$6\frac{3}{6}$
Wednesday	$8\frac{4}{6}$
Thursday	$4\frac{1}{6}$

The entire length of the road will be 27 miles. What is the total remaining length of road that needs to be paved after the four days?

Show your work.

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

$$\begin{array}{r} 5\frac{5}{6} \\ 6\frac{3}{6} \\ 8\frac{4}{6} \\ + 4\frac{1}{6} \\ \hline \end{array}$$

$$\begin{array}{r} 15 \\ + 10\frac{1}{6} \\ \hline 25\frac{1}{6} \end{array}$$

$$\begin{array}{r} 1\frac{1}{6} \\ + 1 \\ \hline 2\frac{1}{6} \end{array}$$

$$\begin{array}{r} 26\frac{6}{6} \\ - 25\frac{1}{6} \\ \hline 1\frac{5}{6} \end{array}$$

Answer 1 $\frac{5}{6}$  miles

### Score Point 3 (out of 3 points)

This response contains the correct solution ( $1\frac{5}{6}$ ) and demonstrates a thorough understanding of the mathematical concepts in the task. The fractions of the given mixed numbers are regrouped to find a pair that equals a whole ( $\frac{5}{6} + \frac{1}{6} = 1$ ), then the remaining pair added ( $\frac{3}{6} + \frac{4}{6} = 1\frac{1}{6}$ ), and those sums added ( $1\frac{1}{6} + 1 = 2\frac{1}{6}$ ). Next, mental math is used first, to add the whole numbers of three of the mixed fractions ( $5 + 6 + 4 = 15$ ) and second, to add the remaining whole number and the earlier sum of the fractions ( $8 + 2\frac{1}{6} = 10\frac{1}{6}$ ). Those sums are added ( $15 + 10\frac{1}{6} = 25\frac{1}{6}$ ), and that sum is subtracted from the total miles of road to pave ( $26\frac{6}{6} - 25\frac{1}{6} = 1\frac{5}{6}$ ). The task has been completed correctly using mathematically sound procedures.



**58**

The students in the Go Green club started a school recycling program. In September, the students collected 86 pounds of paper and 18 pounds of cans to recycle. For October, their goal is to collect three times the amount of paper and five times the amount of cans they collected in September.

If the club meets its goal, how many total pounds of paper and cans will the students collect in September and October combined?

***Show your work.***

***Answer*** \_\_\_\_\_ pounds

**Primary CCLS: 4.OA,2**

Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

**Secondary CCLS: None**

**Statewide Average Points Earned: 1.56 out of 3**

The students in the Go Green club started a school recycling program. In September, the students collected 86 pounds of paper and 18 pounds of cans to recycle. For October, their goal is to collect three times the amount of paper and five times the amount of cans they collected in September.

If the club meets its goal, how many total pounds of paper and cans will the students collect in September and October combined?

*Show your work.*

86 pound of paper  
and 18 pounds of cans.

$$\begin{array}{r} \textcircled{a} \quad \begin{array}{r} 1 \\ 86 \\ \times 3 \\ \hline 258 \end{array} \quad \begin{array}{r} \textcircled{b} \quad \begin{array}{r} 4 \\ 18 \\ \times 5 \\ \hline 90 \end{array} \quad \begin{array}{r} \textcircled{c} \quad \begin{array}{r} 2 \\ 86 \\ + 18 \\ + 258 \\ + 90 \\ \hline 452 \end{array} \end{array}$$

Answer 452 pounds

### Score Point 3 (out of 3 points)

This response contains a correct solution (452) and demonstrates a thorough understanding of the mathematical concepts in the task. The weight of paper collected in September by the Go Green club is multiplied by the club's October goal to collect three times the amount of paper ( $86 \times 3 = 258$ ), and the weight of the cans the club collected in September is multiplied by its October goal to collect five times the amount of cans ( $18 \times 5 = 90$ ). The product of each procedure is then added to the weight of paper and cans collected in September to determine the total weight of recyclable materials the club expects to collect in September and October combined ( $86 + 18 + 258 + 90 = 452$ ). The task has been completed correctly using mathematically sound procedures.

**59**

Andrea bought a bucket of colored chalk. The list below shows the fraction of each color of chalk in the bucket.

- $\frac{2}{6}$  are yellow
- $\frac{5}{12}$  are blue
- $\frac{3}{12}$  are green

Which is greater, the amount of yellow chalk in the bucket or the amount of green chalk in the bucket?

**Show your work.**

**Answer** \_\_\_\_\_

Andrea told Michelle that less than  $\frac{1}{2}$  the chalk in the bucket is blue.

Michelle said she is mistaken. Who is correct? Explain why you chose your answer.

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**Primary CCLS: 4.NF,2**

Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as  $\frac{1}{2}$ . Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols  $>$ ,  $=$ , or  $<$ , and justify the conclusions, e.g., by using a visual fraction model.

**Secondary CCLS: None****Statewide Average Points Earned: 1.48 out of 3**

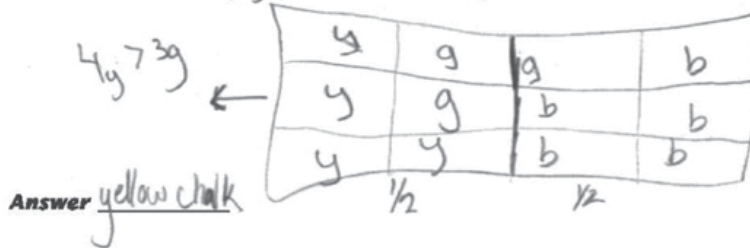
Andrea bought a bucket of colored chalk. The list below shows the fraction of each color of chalk in the bucket.

- $\frac{2}{6}$  are yellow
- $\frac{5}{12}$  are blue
- $\frac{3}{12}$  are green

$$\frac{2 \times 2}{6 \times 2} = \frac{4}{12}$$

Which is greater, the amount of yellow chalk in the bucket or the amount of green chalk in the bucket?

Show your work. y=yellow b=blue g=green



Andrea told Michelle that less than  $\frac{1}{2}$  the chalk in the bucket is blue.

Michelle said she is mistaken. Who is correct? Explain why you chose your answer.

Andrea is correct. I chose my answer because  $\frac{1}{2}$  of 12 is 6, and only 5 pieces of chalk are blue.

### Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The first part contains a correct solution (yellow chalk), and the visual representation used to compare the fractional values of the three colors of chalk in the bucket is clear and complete. This approach simplifies the process so that the segments representing each color are easily counted to compare values. The solution in the second section is correct (Andrea is correct), and the explanation in which the numerator is related to the denominator is clear and correct ( $\frac{1}{2}$  of 12 is 6, and only 5 pieces of chalk are blue). While there appears to be an assumption that the bucket only includes 12 pieces of chalk, thus the numerator represents the total pieces of chalk in each color, this is an acceptable approach to use to compare the fractions. The task has been completed correctly using mathematically sound procedures.

## 2-Point Holistic Rubric

### Score Points:

2 Points	<p>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.</p> <p>This response</p> <ul style="list-style-type: none"><li>• indicates that the student has completed the task correctly, using mathematically sound procedures</li><li>• contains sufficient work to demonstrate a thorough understanding of the mathematical concepts and/or procedures</li><li>• may contain inconsequential errors that do not detract from the correct solution and the demonstration of a thorough understanding</li></ul>
1 Point	<p>A one-point response demonstrates only a partial understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none"><li>• correctly addresses only some elements of the task</li><li>• may contain an incorrect solution but applies a mathematically appropriate process</li><li>• may contain the correct solution but required work is incomplete</li></ul>
0 Points*	<p>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.</p>

\* 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	<p>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.</p> <p>This response</p> <ul style="list-style-type: none"> <li>• indicates that the student has completed the task correctly, using mathematically sound procedures</li> <li>• contains sufficient work to demonstrate a thorough understanding of the mathematical concepts and/or procedures</li> <li>• may contain inconsequential errors that do not detract from the correct solution(s) and the demonstration of a thorough understanding</li> </ul>
2 Points	<p>A two-point response demonstrates a partial understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none"> <li>• appropriately addresses most, but not all, aspects of the task using mathematically sound procedures</li> <li>• may contain an incorrect solution but provides sound procedures, reasoning, and/or explanations</li> <li>• may reflect some minor misunderstanding of the underlying mathematical concepts and/or procedures</li> </ul>
1 Point	<p>A one-point response demonstrates only a limited understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none"> <li>• may address some elements of the task correctly but reaches an inadequate solution and/or provides reasoning that is faulty or incomplete</li> <li>• exhibits multiple flaws related to misunderstanding of important aspects of the task, misuse of mathematical procedures, or faulty mathematical reasoning</li> <li>• reflects a lack of essential understanding of the underlying mathematical concepts</li> <li>• may contain the correct solution(s) but required work is limited</li> </ul>
0 Points*	<p>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.</p>

\* 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.