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Our Students. Their Moment.

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

Released Questions

July 2015

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Grade 4 Common Core
Mathematics Test

Released Questions

With the adoption of the New York P–12 Common Core Learning Standards (CCLS) in ELA/Literacy and Mathematics, the Board of Regents signaled a shift in both instruction and assessment. Starting in Spring 2013, New York State began administering tests designed to assess student performance in accordance with the instructional shifts and the rigor demanded by the Common Core State Standards (CCSS). To aid in the transition to new assessments, New York State has released a number of resources, including test blueprints and specifications, sample questions, and criteria for writing assessment questions. These resources can be found at http://www.engageny.org/common-core-assessments.

New York State administered the ELA/Literacy and Mathematics Common Core tests in April 2015 and is now making a portion of the questions from those tests available for review and use. These released questions will help students, families, educators, and the public better understand how tests have changed to assess the instructional shifts demanded by the Common Core and to assess the rigor required to ensure that all students are on track to college and career readiness.

Released Questions Are Teaching Tools

The released questions are intended to help educators, students, families, and the public understand how the Common Core is different. The questions demonstrate the way the Common Core should drive instruction and how tests have changed to better assess student performance in accordance with the instructional shifts demanded by the Common Core. They are also intended to help educators identify how the rigor of the State tests can inform classroom instruction and local assessment.

Understanding Math Questions

Multiple Choice

Multiple-choice questions are designed to assess CCLS for Mathematics. Mathematics multiple-choice questions will mainly be used to assess standard algorithms and conceptual standards. Multiple-choice questions incorporate both Standards and Standards for Mathematical Practices, some in real-world applications. Many multiple-choice questions require students to complete multiple steps. Likewise, many of these questions are linked to more than one standard, drawing on the simultaneous application of multiple skills and concepts. Within answer choices, distractors will all be based on plausible missteps.

Short and extended constructed-response questions may refer to the scoring rubric, which can be found in the Educator Guide to the 2015 Grade 4 Common Core Mathematics Test at http://www.engageny.org/resource/test-guides-for-english-language-arts-and-mathematics.

Short Response

Short-response questions require students to complete a task and show their work. Like multiple-choice questions, short-response questions will often require multiple steps, the application of multiple mathematics

skills, and real-world applications. Many of the short-response questions will cover conceptual and application Standards.

Extended Response

Extended-response questions ask students to show their work in completing two or more tasks or a more extensive problem. Extended-response questions allow students to show their understanding of mathematical procedures, conceptual understanding, and application. Extended-response questions may also assess student reasoning and the ability to critique the arguments of others.

CCLS Alignment

The alignment(s) to the Common Core Learning Standards for Mathematics are intended to identify the primary analytic skills necessary to successfully answer each question. However, some questions measure proficiencies described in multiple standards, including a balanced combination of procedure and conceptual understanding. For example, two-point and three-point constructed-response questions require students to show an understanding of mathematical procedures, concepts, and applications.

Released Questions Do Not Comprise a "Mini" Test

This document is NOT intended to show how operational tests look or to provide information about how teachers should administer the test; rather, the purpose of the released questions is to provide an overview of how the new test reflects the demands of the Common Core.

The released questions do not represent the full spectrum of standards assessed on the State tests, nor do they represent the full spectrum of how the Common Core should be taught and assessed in the classroom. It should not be assumed that a particular standard will be measured with an identical question in future assessments. Specific criteria for writing test questions as well as additional instruction and assessment information is available at http://www.engageny.org/common-core-assessments.

One full-credit student response is provided with each released constructed-response question. The example is provided to illustrate one of many ways students can achieve full credit in answering the test question. The sample response is not intended to represent a best response nor does it illustrate the only way a student could earn full credit.

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.
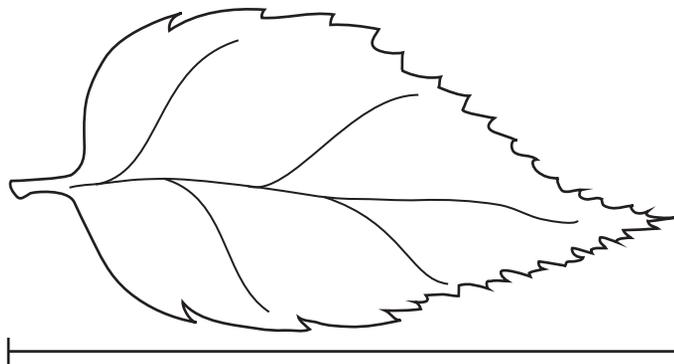
What is the length of this leaf?

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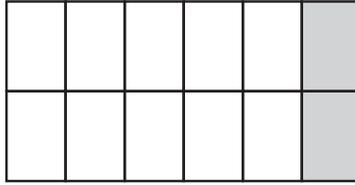
Which fraction is equivalent to the one represented by the shaded part of the sheet of paper?

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 × a)/(n × 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?
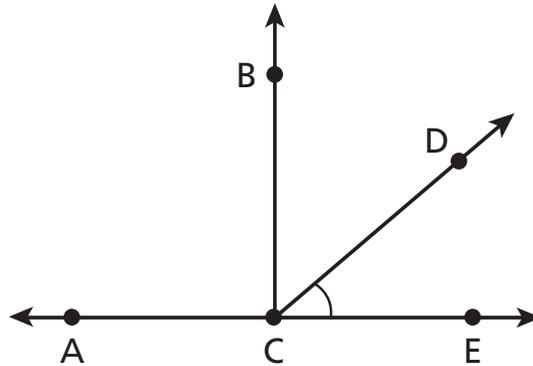
A 40°

B 50°

C 90°

D 130°

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%

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

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

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

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

Key: A
Primary CCLS: 4.OA,1

Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5×7 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%

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

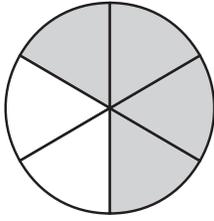**Key: B**
Primary CCLS: 4.NBT,3

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

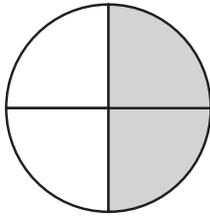**Secondary CCLS: None**
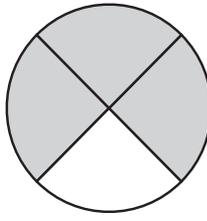**Percentage of Students Statewide Who Answered Correctly: 66%**

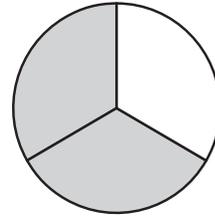**11** Students shaded the shapes below to represent fractions.

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 × a)/(n × 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.
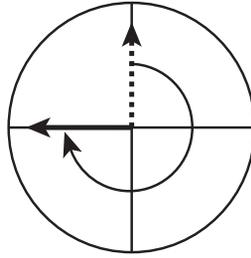
What fraction of a complete turn through a circle is 270 degrees?

A $\dfrac{3}{360}$

B $\dfrac{27}{360}$

C $\dfrac{90}{360}$

D $\dfrac{270}{360}$

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 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 $3 \times \dfrac{1}{2}$?

A

B

C

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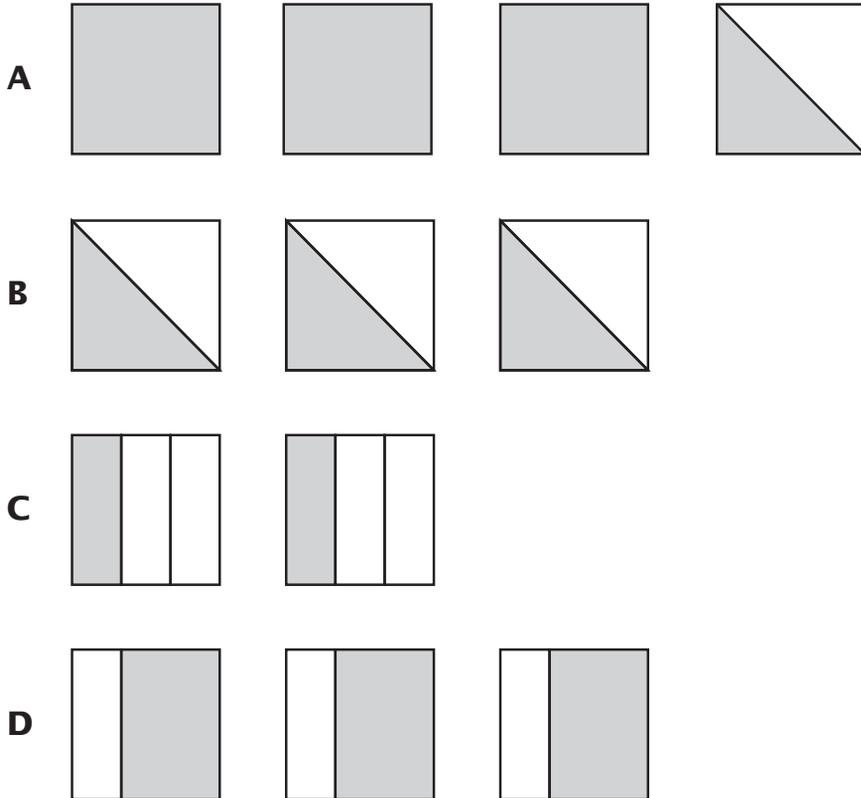
Key: B
Primary CCLS: 4.NF,4,a

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 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 50%

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%

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%

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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 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%

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?
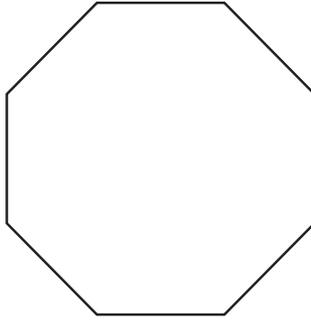
A The figure has opposite sides that are perpendicular and angles that measure 135°.

B The figure has opposite sides that are perpendicular and angles that measure 45°.

C The figure has opposite sides that are parallel and angles that measure 135°.

D The figure has opposite sides that are parallel and angles that measure 45°.

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.
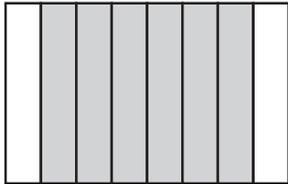
Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 45%

38 The model below is shaded to represent a fraction.
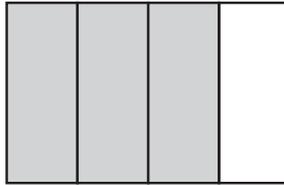
Which figure is shaded to show a fraction equivalent to the model?

A

B

C
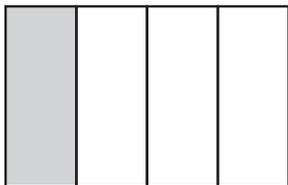
D
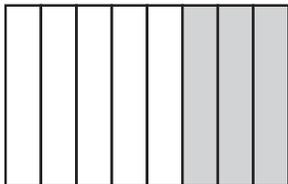
Key: A
Primary CCLS: 4.NF,1

Explain why a fraction a/b is equivalent to a fraction (n × a)/(n × 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%

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 ÷ 70 = 10 by applying concepts of place value and division.

Secondary CCLS: None
Percentage of Students Statewide Who Answered Correctly: 51%

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%

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%

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 ÷ 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.
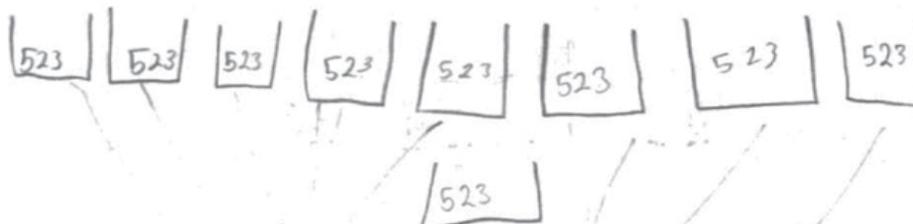
Secondary CCLS: None

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.

523 523 523 523 523 523 523 523

523

all creats total 4,707 kilograms

4707 ÷ 9 = 523 kilogram

523 × 9 = 9,707 kilogram

$$9\overline{)4707}$$ 523
45
20
18
27
27
00

Answer _523_ kilograms

523
× 9
4707 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 × 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.

$$
\begin{array}{r}
58 \\
\times 36 \\
\hline
348 \\
1740 \\
\hline
2088
\end{array}
$$

$$
\begin{array}{r}
2088 \\
\times \quad 4 \\
\hline
8352
\end{array}
$$

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

Draw an obtuse angle.
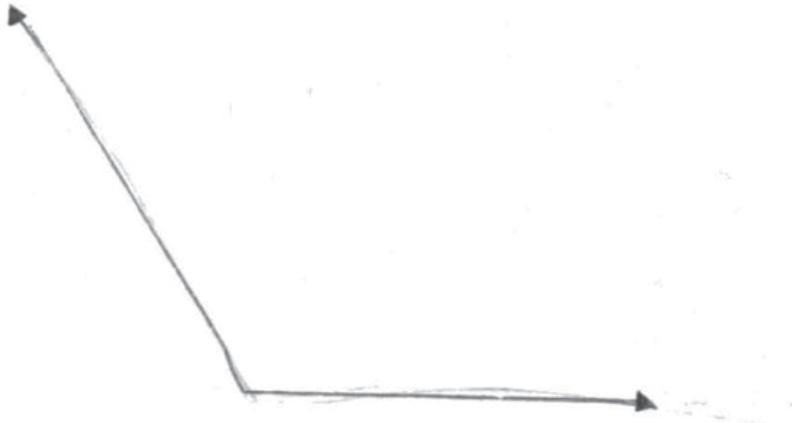
What is the measure, in degrees, of the angle you drew?

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°) is well within the ±5° 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

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.

820,445 (?) 805,235
820,445 (>) 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 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.

$$6 \times \frac{4}{8} = \frac{24}{8} = 3$$
$$6 \times \frac{2}{8} = \frac{12}{8} = 1\frac{4}{8}$$

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

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

Score Point 2 (out of 2 points)

This response contains the correct solution (4⁴/₈) 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 × ⁴/₈ = ²⁴/₈ = 3) then multiplied by the amount of vinegar needed for each (6 × ²/₈ = ¹²/₈ = 1⁴/₈). Finally, the products of each are added to calculate the correct solution (3 + 1⁴/₈ = 4⁴/₈). 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

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.

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

$5\frac{5}{6}$
$8\frac{3}{6}$ 15
$8\frac{4}{6}$ $+10\frac{1}{6}$
$+4\frac{1}{6}$ $25\frac{1}{6}$

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

$26\frac{6}{6}$
$27 - 25\frac{1}{6} = 1\frac{5}{6}$

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

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.

86 pound of paper
and 18 pounds of cans.

(a)
```
  1
  86
×  3
 258
```

(b)
```
  4
  18
×  5
  90
```

(c)
```
    2
    86
  + 18
    2
 + 258
 +  90
   452
```

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 × 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 × 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.

_____

_____

_____

_____

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 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
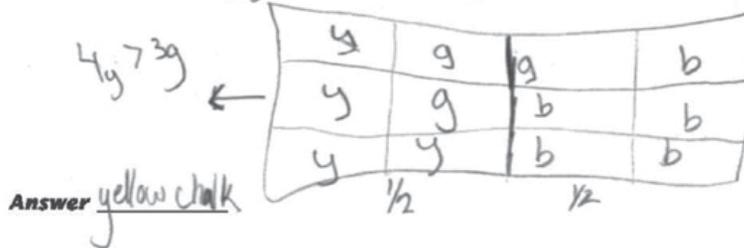**Statewide Average Points Earned: 1.48 out of 3**

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

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

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

$4y > 3g$ ←

y	g	g	b
y	g	b	b
y	y	b	b

½   ½

Answer yellow chalk

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 ½ of 12 is 6, and only 5 peices 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 | 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.