engage^ny

Our Students. Their Moment.

New York State Testing Program
Grade 4 Common Core
Mathematics Test

Released Questions

May 2016

New York State administered the Mathematics Common Core Tests in April 2016 and is now making approximately 75% of the questions from these tests available for review and use.

June 28, 2016

New York State Testing Program
Grade 3-8 Mathematics

Released Questions from 2016 Exams

Background

In 2013, New York State began administering tests designed to assess student performance in accordance with the instructional shifts and rigor demanded by the new New York State P-12 Learning Standards in Mathematics. To help in this transition to new assessments, the New York State Education Department (SED) has been releasing an increasing numbers of test questions from the tests that were administered to students across the State in the spring. This year, SED is again releasing large portions of the 2016 NYS Grade 3-8 Common Core English Language Arts and Mathematics test materials for review, discussion, and use.

For 2016, included in these released materials are at least 75 percent of the test questions that appeared on the 2016 tests (including all constructed-response questions) that counted toward students' scores. Additionally, SED is also providing a map that details what each released question measures and the correct response to each question. These released materials will help students, families, educators, and the public better understand the tests and the New York State Education Department's expectations for students.

Understanding Math Questions

Multiple-Choice Questions

Multiple-choice questions are designed to assess the New York State P-12 Learning Standards for Mathematics. Mathematics multiple-choice questions will be used mainly to assess standard algorithms and conceptual standards. Multiple-choice questions incorporate both the grade-level standards and the "Standards for Mathematical Practices." Many questions are framed within the context of real-world applications or 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.

Short-Response Questions

Short-response questions require students to complete tasks 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 of the standards.

Extended-Response Questions

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.

The scoring rubric for short and extended constructed-response questions can be found in the grade-level Educator Guides at http://www.engageny.org/resource/test-guides-for-english-language-arts-and-mathematics.

New York State P-12 Learning Standards Alignment

The alignment(s) to the New York State P-12 Learning Standards for Mathematics is/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.

These Released Questions Do Not Comprise a "Mini Test"

To ensure future valid and reliable tests, some content must remain secure for possible use on future exams. As such, this document is *not* intended to be representative of the entire test, to show how operational tests look, or to provide information about how teachers should administer the test; rather, its purpose is to provide an overview of how the test reflects the demands of the New York State P-12 Learning Standards.

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

Name: _____

New York State Testing Program

2016 Common Core Mathematics Test Book 1

Grade 4

April 13–15, 2016

Released Questions

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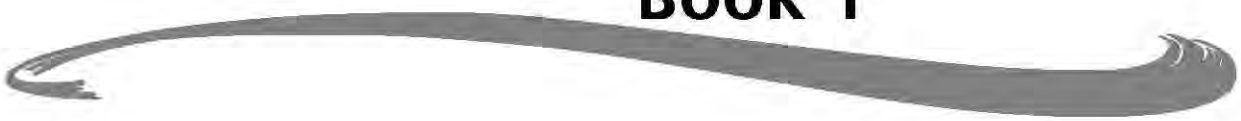
Book 1

Book 1



TIPS FOR TAKING THE TEST

Here are some suggestions to help you do your best:

- Read each question carefully and think about the answer before choosing your response.
- You have been provided with mathematics tools (a ruler and a protractor) to use during the test. It is up to you to decide when each tool will be helpful. You should use mathematics tools whenever you think they will help you to answer the question.
- Plan your time.

1 What expression can be used to show 270,240 written in expanded form?

A 200,000 + 7,000 + 200 + 4

B 200,000 + 7,000 + 200 + 40

C 200,000 + 70,000 + 200 + 40

D 200,000 + 70,000 + 2,000 + 40

2 There are 20 students in Mr. Clark's fourth-grade class. There are 5 times as many students in the entire fourth grade as there are in Mr. Clark's class. Which equation can be used to determine the number of students, n, in the entire fourth grade?

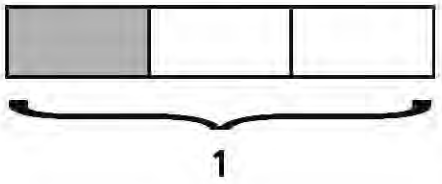
A $5 \times n = 20$

B $5 + 20 = n$

C $20 \times 5 = n$

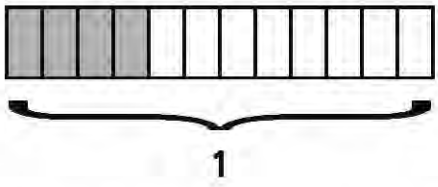
D $20 \div n = 5$

3 The model below is shaded to represent a fraction.

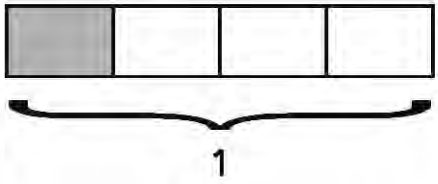


Which model shows an equivalent fraction?

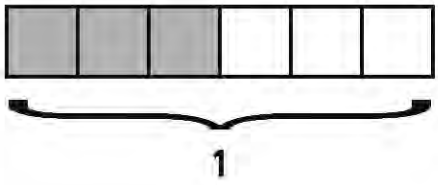
A



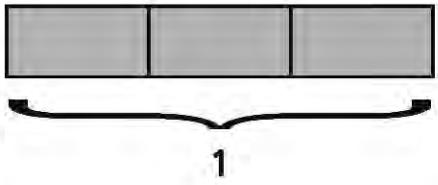
B



C



D



4 What value can replace the question mark to make the statement true?

$$3\frac{2}{8} + \underline{\quad ? \quad} = 7\frac{1}{8}$$

A $3\frac{1}{8}$

B $3\frac{7}{8}$

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

D $4\frac{7}{8}$

5 If 30,000 is divided by 10 and then divided by 10 again, what will be the resulting number?

A 3

B 30

C 300

D 3,000

6 Students voted on a name for their school softball team. The table below lists the number of votes each team name received.

TEAM NAME VOTES

Name	Number of Votes
Bears	12
Comets	36
Hawks	117
Stars	39
Wolves	108

Which team name received 3 times as many votes as "Comets"?

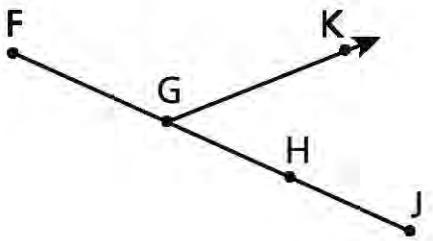
A Bears

B Hawks

C Stars

D Wolves

7 What is the name of the ray in the diagram below?



A ray K

B ray FJ

C ray GK

D ray KGJ

8 The measure of angle G is 20°. What fraction of a complete circle is the measure of angle G?

A $\frac{20}{360}$

B $\frac{20}{340}$

C $\frac{20}{180}$

D $\frac{20}{100}$

9 Dawn needs to fix windows in her house. She must buy 3 feet of wood, which costs $7 per foot. She also needs to buy 4 pieces of glass. Each piece of glass costs $23. What will be the total cost for fixing the windows?

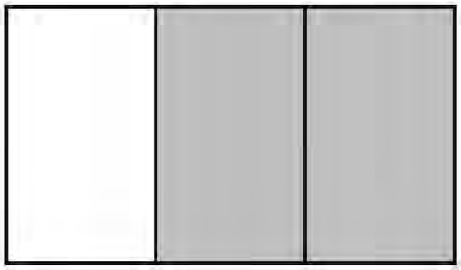
A $30

B $90

C $113

D $176

13 Jason makes aprons. The shaded part below represents the fraction of a yard of fabric he uses for each apron.



How many yards of fabric, in all, will Jason need to make 14 aprons?

A $4\frac{2}{3}$

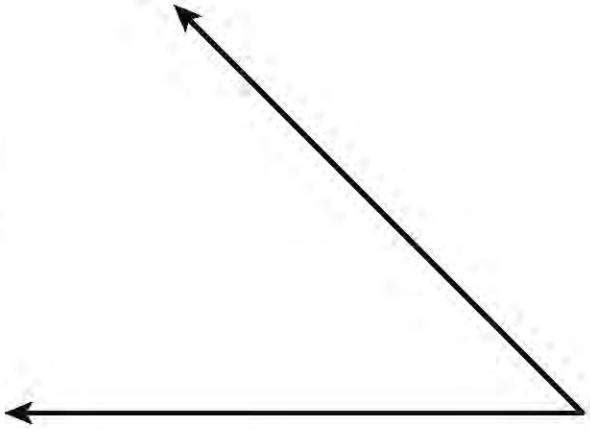
B $9\frac{1}{3}$

C $13\frac{1}{3}$

D $14\frac{2}{3}$

17 Which angle has a measure of 45° ?

A



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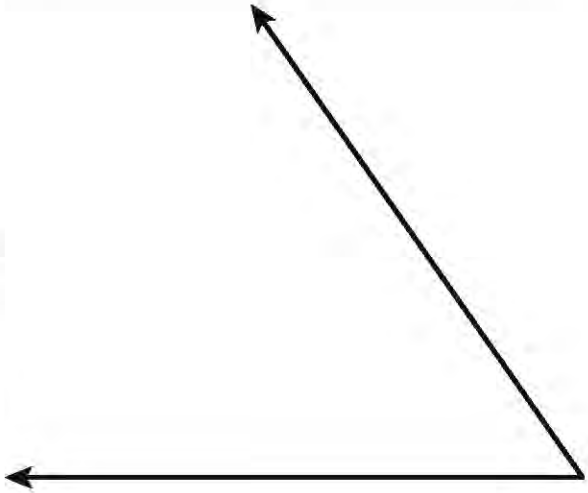
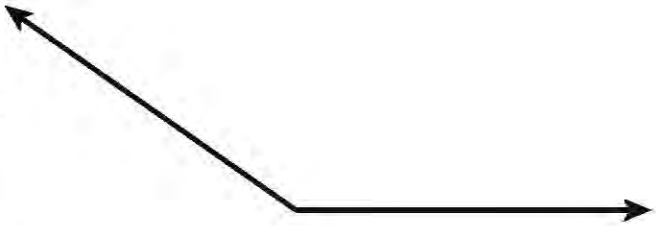
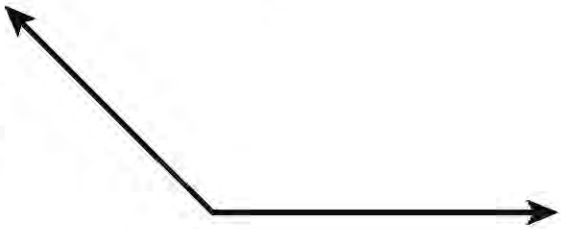


C



D



18 The value of the digit 5 in 24,513 is how many times the value of the digit 5 in 357?

A 10

B 100

C 1,000

D 10,000

GO ON

Grade 4
2016 Common Core Mathematics Test
Book 1
April 13–15, 2016

Name: _____

New York State Testing Program

2016 Common Core Mathematics Test Book 2

Grade 4

April 13–15, 2016

Released Questions

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Book 2

Book 2

TIPS FOR TAKING THE TEST

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- You have been provided with mathematics tools (a ruler and a protractor) to use during the test. It is up to you to decide when each tool will be helpful. You should use mathematics tools whenever you think they will help you to answer the question.
- Plan your time.

23 In December, a toy store sold 934 puzzles. Each puzzle cost $6, including tax. What was the total cost of the puzzles sold, including tax?

A $5,434

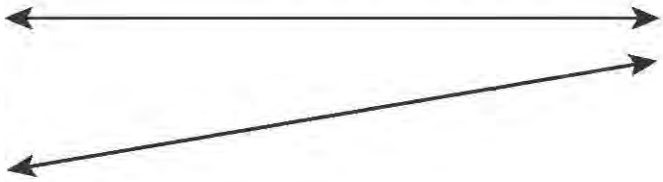
B $5,484

C $5,604

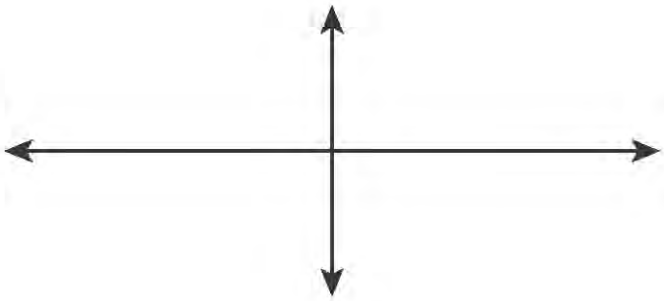
D $5,684

24 Which figure appears to show a pair of perpendicular lines?

A



B



C

D

GO ON

25 Which fraction goes into the blank to make the number sentence true?

$$\frac{2}{3} < \underline{\quad ? \quad}$$

A $\frac{1}{6}$

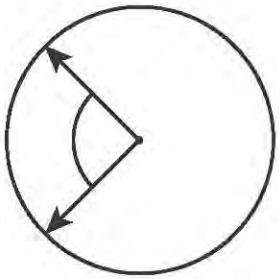
B $\frac{3}{6}$

C $\frac{3}{5}$

D $\frac{3}{4}$

26 Which model shows an angle that appears to represent $\frac{45}{360}$ of a circle?

A



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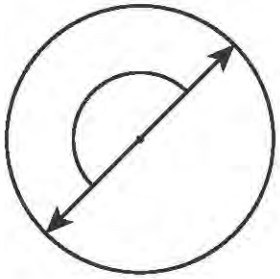

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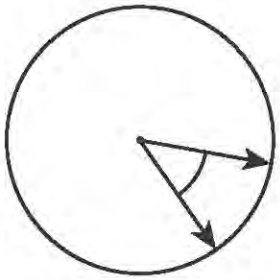

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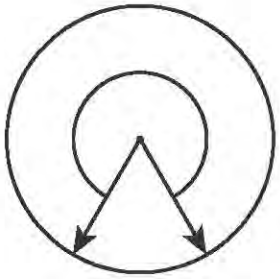


27 The number pattern below follows a skip-counting rule.

5, 20, 35, 50, 65...

Which number pattern follows the same rule?

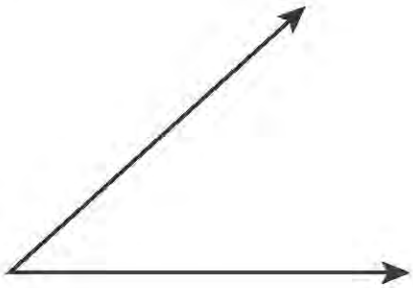
A 5, 20, 25, 30, 35...

B 13, 18, 23, 28, 33...

C 12, 27, 42, 57, 72...

D 15, 30, 40, 55, 65...

28 Which measurement best represents the measure of the angle below?



A 36°

B 42°

C 138°

D 142°

29 Kailyn read 24 pages of a book. Logan read three times as many pages as Kailyn. Which equation can be used to find the total number of pages Logan read?

A $3 \times \underline{?} = 24$

B $3 + \underline{?} = 24$

C $24 \times 3 = \underline{?}$

D $24 \div 3 = \underline{?}$

30 A team of volunteers collected a total of $5,144 selling T-shirts at a charity concert. Each T-shirt was sold for $8. What was the total number of T-shirts the volunteers sold?

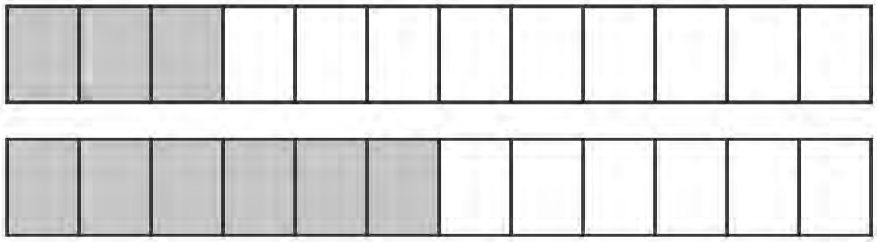
A 632

B 643

C 655

D 668

31 The shaded parts of the fraction strips below represent two fractions.



What is the sum of the two fractions?

A $\frac{3}{12}$

B $\frac{9}{24}$

C $\frac{9}{12}$

D $\frac{15}{12}$

32 What is the value of the expression below?

$$28 \times 42$$

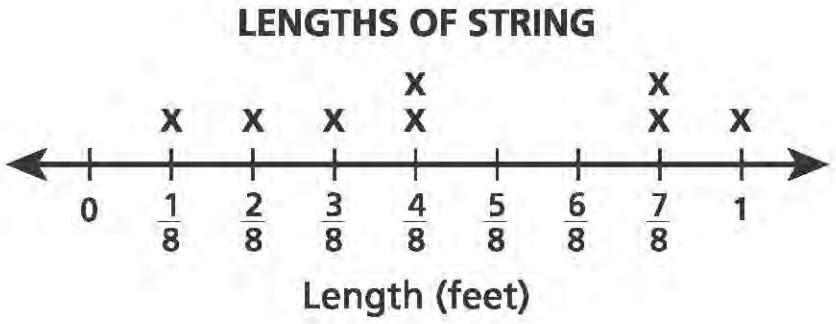
A 420

B 816

C 1,166

D 1,176

33 The line plot below shows the lengths of string Mario used for an art project.



What was the total length, in feet, of string that Mario used?

A $\frac{25}{8}$

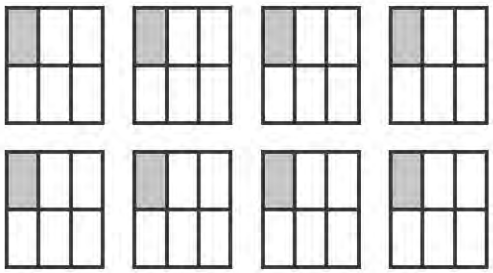
B $\frac{36}{8}$

C $\frac{48}{8}$

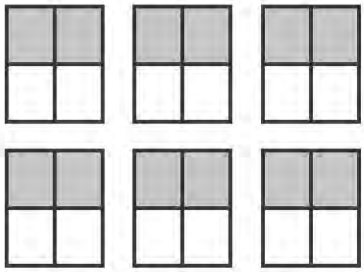
D $\frac{64}{8}$

34 Which set of models is equivalent to the expression $2 \times \frac{4}{6}$?

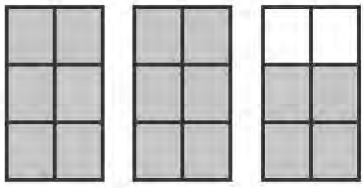
A



B



C



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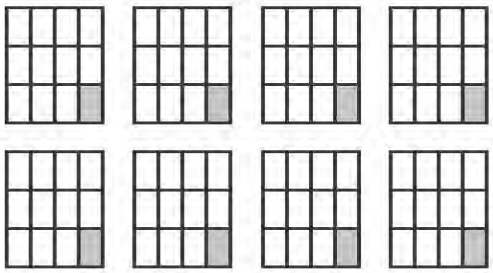

38 Dani has 45 marbles. She has 5 times as many marbles as Joe has. How many marbles does Joe have?

A 50

B 40

C 9

D 5

39 When a certain number is divided by 4, the answer is 160 with a remainder of 2. What is the number?

A 38

B 42

C 638

D 642

Grade 4
2016 Common Core Mathematics Test
Book 2
April 13–15, 2016

Name: _____

New York State Testing Program

2016 Common Core Mathematics Test Book 3

Grade 4

April 13–15, 2016

GRADE 4 MATH BOOK 3

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Book 3

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- Be sure to show your work when asked.
- Plan your time.

46 The area of a rectangular doghouse floor is 15 square feet. The length of the floor is five feet. What is the perimeter of the floor of the doghouse?

Show your work.

Answer _____ feet

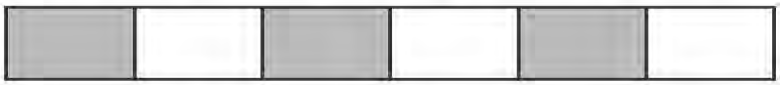
GO ON

47 Last month, a store sent 2,014 e-mails to customers about sales. The number of e-mails sent the month before was 2,104.

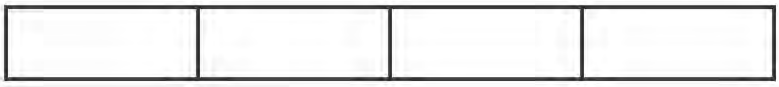
Use one of the symbols <, >, or = to compare the two numbers of e-mails sent. Explain how you used the digits to determine your answer.

Answer

48 Mandy shaded the fraction strip below to represent a fraction.

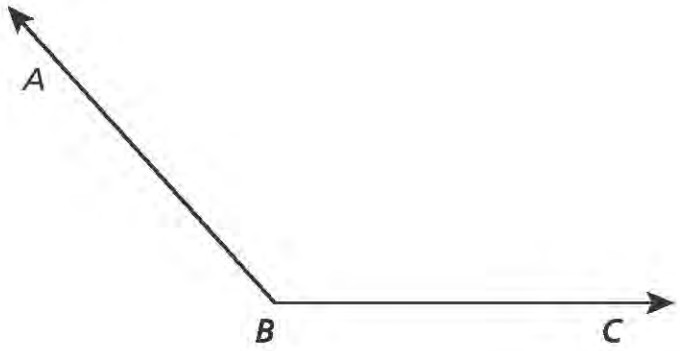


Shade the fraction strip below so that it represents a fraction that is equivalent to Mandy's fraction strip.



Explain how you know your fraction strip is correct.

49 Joli started with angle *ABC* that measured 132°, as shown below.



Joli wanted to cut the angle into two smaller angles. Draw and label ray *BD* to cut angle *ABC* into two smaller angles, with angle *DBC* measuring 55°. What is the measure of angle *ABD*?

Answer _____°

50 A recipe requires $\frac{3}{8}$ cup of sugar for each cup of flour used. If a baker uses 10 cups of flour, what is the total amount of sugar that will be needed?

Show your work.

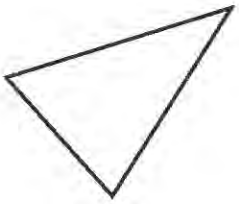
Answer _____ cup(s)

Between what two whole numbers does your answer lie?

Answer _____ and _____

GO ON

51 Is the triangle below best described as right, acute, or obtuse?



Answer _____

Explain how you know your answer is correct.

_____

_____

_____

52 Reggie read a 400-page book in 5 days. On the first day, he read 120 pages. Each day after that, he read the same number of pages, p.

Write an equation that can be used to determine the number of pages, p, read on each day after the first day.

Answer _____

Using your equation, determine the number of pages Reggie read each day after the first day.

Show your work.

Answer _____ pages per day

GO ON

53 The Corner Ice Cream Shop has three different types of toppings. The amounts shown below were on the shelf at the end of the day on Monday.

- $\frac{7}{8}$ gallon chocolate sauce
- $\frac{3}{8}$ gallon strawberry sauce
- $\frac{4}{8}$ gallon caramel sauce

On Tuesday, the shop used $\frac{3}{8}$ gallon of chocolate sauce, $\frac{1}{8}$ gallon of strawberry sauce, and $\frac{2}{8}$ gallon of caramel sauce. What was the total amount of toppings, in gallons, remaining at the end of the day on Tuesday?

Show your work.

Answer _____ gallon(s)

54 There will be 45 adults going to a museum. There will be twice as many students as adults. Adult tickets cost $25 each. Student tickets cost $12 each.

What is the total cost for the students and adults?

Show your work.

Answer $ _____

GO ON

55 Adam, Clara, and Deena painted a tree house.

- Adam spent 2 times as many minutes painting as Clara.
- Clara spent 30 more minutes painting than Deena.
- Deena spent 45 minutes painting.

What is the total number of minutes that Adam, Clara, and Deena spent painting the tree house?

Show your work.

Answer _____ minutes

STOP

Place Student Label Here

Grade 4
2016 Common Core Mathematics Test
Book 3
April 13–15, 2016

THE STATE EDUCATION DEPARTMENT

THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234

2016 Mathematics Tests Map to the Standards

Grade 4 **Released Questions Available on EngageNY**

Question	Type	Key	Points	Standard	Cluster	Secondary Standard(s)	Multiple Choice Questions: Percentage of Students Who Answered Correctly (P-Value)	Constructed Response Questions: Average Points Earned	Constructed Response Questions: P-Value (Average Points Earned ÷ Total Possible Points)
Book 1									
1	Multiple Choice	C	1	CCSS.Math.Content.4.NBT.A.2	Number and Operations in Base Ten		0.83		
2	Multiple Choice	C	1	CCSS.Math.Content.4.OA.A.2	Operations and Algebraic Thinking		0.77		
3	Multiple Choice	A	1	CCSS.Math.Content.4.NF.A.1	Number and Operations—Fractions		0.72		
4	Multiple Choice	B	1	CCSS.Math.Content.4.NF.B.3c	Number and Operations—Fractions		0.49		
5	Multiple Choice	C	1	CCSS.Math.Content.4.NBT.A.1	Number and Operations in Base Ten		0.65		
6	Multiple Choice	D	1	CCSS.Math.Content.4.OA.A.2	Operations and Algebraic Thinking		0.72		
7	Multiple Choice	C	1	CCSS.Math.Content.4.G.A.1	Geometry		0.65		
8	Multiple Choice	A	1	CCSS.Math.Content.4.MD.C.5a	Measurement and Data		0.71		
9	Multiple Choice	C	1	CCSS.Math.Content.4.OA.A.3	Operations and Algebraic Thinking		0.74		
13	Multiple Choice	B	1	CCSS.Math.Content.4.NF.B.4c	Number and Operations—Fractions		0.43		
17	Multiple Choice	A	1	CCSS.Math.Content.4.MD.C.6	Measurement and Data		0.70		
18	Multiple Choice	A	1	CCSS.Math.Content.4.NBT.A.1	Number and Operations in Base Ten		0.61		
Book 2									
23	Multiple Choice	C	1	CCSS.Math.Content.4.NBT.B.5	Number and Operations in Base Ten		0.75		
24	Multiple Choice	B	1	CCSS.Math.Content.4.G.A.1	Geometry		0.66		
25	Multiple Choice	D	1	CCSS.Math.Content.4.NF.A.2	Number and Operations—Fractions		0.63		
26	Multiple Choice	C	1	CCSS.Math.Content.4.MD.C.5b	Measurement and Data		0.61		
27	Multiple Choice	C	1	CCSS.Math.Content.4.OA.C.5	Operations and Algebraic Thinking		0.51		

Grade 4 **Released Questions Available on EngageNY**

Question	Type	Key	Points	Standard	Cluster	Secondary Standard(s)	Multiple Choice Questions: Percentage of Students Who Answered Correctly (P-Value)	Constructed Response Questions: Average Points Earned	Constructed Response Questions: P-Value (Average Points Earned ÷ Total Possible Points)
28	Multiple Choice	B	1	CCSS.Math.Content.4.MD.C.6	Measurement and Data		0.75		
29	Multiple Choice	C	1	CCSS.Math.Content.4.OA.A.1	Operations and Algebraic Thinking		0.79		
30	Multiple Choice	B	1	CCSS.Math.Content.4.NBT.B.6	Number and Operations in Base Ten		0.68		
31	Multiple Choice	C	1	CCSS.Math.Content.4.NF.B.3a	Number and Operations—Fractions		0.70		
32	Multiple Choice	D	1	CCSS.Math.Content.4.NBT.B.5	Number and Operations in Base Ten		0.69		
33	Multiple Choice	B	1	CCSS.Math.Content.4.MD.B.4	Measurement and Data		0.56		
34	Multiple Choice	A	1	CCSS.Math.Content.4.NF.B.4b	Number and Operations—Fractions		0.46		
38	Multiple Choice	C	1	CCSS.Math.Content.4.OA.A.2	Operations and Algebraic Thinking		0.70		
39	Multiple Choice	D	1	CCSS.Math.Content.4.NBT.B.6	Number and Operations in Base Ten		0.60		
Book 3									
46	Constructed Response		2	CCSS.Math.Content.4.MD.A.3	Measurement and Data	CCSS.Math.Content.4.OA.A.3		0.94	0.47
47	Constructed Response		2	CCSS.Math.Content.4.NBT.A.2	Number and Operations in Base Ten			1.36	0.68
48	Constructed Response		2	CCSS.Math.Content.4.NF.A.1	Number and Operations—Fractions			1.30	0.65
49	Constructed Response		2	CCSS.Math.Content.4.MD.C.7	Measurement and Data	CCSS.Math.Content.4.MD.C.6		0.80	0.40
50	Constructed Response		2	CCSS.Math.Content.4.NF.B.4c	Number and Operations—Fractions			0.98	0.49
51	Constructed Response		2	CCSS.Math.Content.4.G.A.2	Geometry			1.16	0.58
52	Constructed Response		3	CCSS.Math.Content.4.OA.A.3	Operations and Algebraic Thinking			0.69	0.23
53	Constructed Response		3	CCSS.Math.Content.4.NF.B.3d	Number and Operations—Fractions			1.76	0.59
54	Constructed Response		3	CCSS.Math.Content.4.NBT.B.5	Number and Operations in Base Ten			1.53	0.51
55	Constructed Response		3	CCSS.Math.Content.4.OA.A.2	Operations and Algebraic Thinking			1.50	0.50

*This item map is 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 procedural and conceptual understanding.