



Our Students. Their Moment.

**New York State Testing Program  
Grade 5 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***

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## **2016 Common Core Mathematics Test Book 1**

# **Grade 5**

**April 13–15, 2016**

Released Questions

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# 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) and a reference sheet to use during the test. It is up to you to decide when each tool and the reference sheet will be helpful. You should use mathematics tools and the reference sheet whenever you think they will help you to answer the question.
- Plan your time.

- 1 Pax wants to make fruit punch for a party using the recipe below.

<b>Fruit Punch</b>
1.25 L orange juice
2.5 L cranberry juice
1 L ginger ale

He will make three times the amount of fruit punch listed in the recipe. What is the total amount of fruit punch, in liters, that Pax will make?

- A 4.53
- B 4.75
- C 12.90
- D 14.25

- 2 What is the value of the expression below?

$$\begin{array}{r} 3\frac{1}{4} \\ -1\frac{7}{8} \\ \hline \end{array}$$

- A  $1\frac{1}{4}$
- B  $1\frac{3}{8}$
- C  $2\frac{3}{8}$
- D  $3\frac{1}{2}$

**GO ON**

3 What is the value of the expression  $3,972 \div 12$ ?

- A 372
- B 336
- C 331
- D 306

4 The sign below is located at the start of Pinecone Trail and shows the distances from the sign to different points of interest along the trail.

Pinecone Trail	
Nature Center	$1\frac{1}{2}$ miles
Giant Boulder	$4\frac{1}{4}$ miles
Lookout Point	$8\frac{3}{4}$ miles

Sage hiked from the start of the trail to Lookout Point. She then hiked back to Giant Boulder to camp for the night. What was the total distance, in miles, that Sage hiked?

- A  $21\frac{3}{4}$
- B  $13\frac{1}{4}$
- C  $4\frac{1}{2}$
- D  $4\frac{1}{4}$

5 Which type of quadrilateral can have exactly 1 pair of parallel sides?

- A rectangle
- B rhombus
- C square
- D trapezoid

**GO ON**

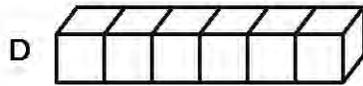
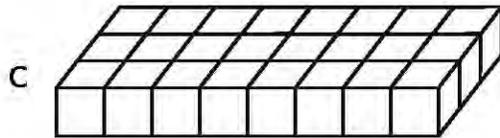
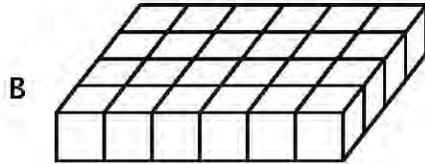
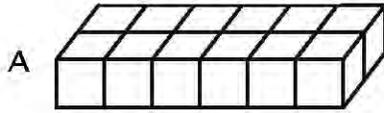
- 9 What is the value of the expression below?

$$56 \div \frac{1}{17}$$

- A  $\frac{1}{952}$   
B  $\frac{17}{56}$   
C  $3\frac{5}{17}$   
D 952

10

In her math class, Carla used unit cubes to build a right rectangular prism with a volume of 24 cubic units. The height of the prism was two units. Which figure could be the bottom layer of the prism?



**GO ON**

- 13 Bettina spent \$75 on 5 shirts that each cost the same price. Three of the shirts were red. Which expression represents the total cost of the red shirts?

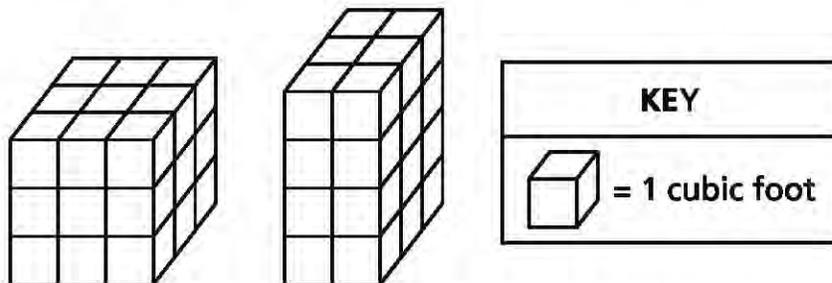
A  $75 \times \frac{3}{5}$

B  $75 \times \frac{5}{3}$

C  $\frac{75}{5} \times \frac{1}{3}$

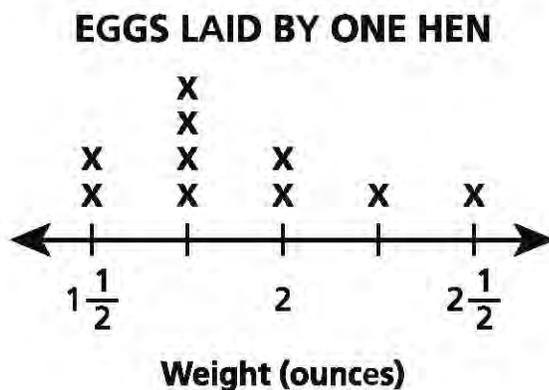
D  $\frac{75}{3} \times \frac{1}{5}$

- 14 The two right rectangular prisms below have different volumes.



What is the difference in volume, in cubic feet, of the two prisms?

- A 1  
B 3  
C 6  
D 9
- 15 The line plot shows the weights of ten eggs laid by one hen.



What is the total weight, in ounces, of the four heaviest eggs?

- A 4  
B 7  
C  $8\frac{1}{2}$   
D  $8\frac{3}{4}$

**GO ON**

- 16 The table below lists the capacity, in quarts, of four different fish tanks at a pet store.

**FISH TANK CAPACITY**

Fish Tank	Capacity (quarts)
Pacific	240
Fresh	15
Tropic	120
Bahama	60

Which fish tank has a capacity of 60 gallons?

- A Pacific
  - B Fresh
  - C Tropic
  - D Bahama
- 17 Which number sentence is true?

- A  $0.35 > 0.36$
- B  $0.3 < 0.04$
- C  $0.3 > 0.20$
- D  $0.75 < 0.7$

18

Mr. Hinckley owns 83 acres of land. He divides the land into eight equal sections to sell to eight buyers. Which phrase describes how much land, in acres, each buyer will receive?

- A more than 9 and less than 10
- B more than 10 and less than 11
- C more than 11 and less than 12
- D more than 12 and less than 13

**GO ON**

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**Grade 5**  
**2016 Common Core**  
**Mathematics Test**  
**Book 1**  
April 13–15, 2016

Name: \_\_\_\_\_



# *New York State Testing Program*

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## **2016 Common Core Mathematics Test Book 2**

**Grade 5**

**April 13–15, 2016**

Released Questions

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# Book 2



## TIPS FOR TAKING THE TEST

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- 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) and a reference sheet to use during the test. It is up to you to decide when each tool and the reference sheet will be helpful. You should use mathematics tools and the reference sheet whenever you think they will help you to answer the question.
- Plan your time.

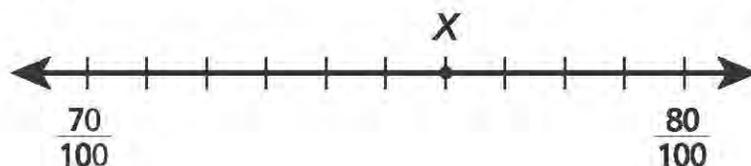
- 23 What is the value of the expression below?

$$8 + 24 \div (2 \times 6) - 4$$

- A 92
  - B 76
  - C 11
  - D 6
- 24 Parallelograms **always** belong to which category of shapes?

- A squares
- B rectangles
- C rhombuses
- D quadrilaterals

- 25 Which decimal **best** represents the location of point  $X$  on the number line below?



- A 0.076
- B 0.077
- C 0.76
- D 0.77

**GO ON**

26 What is  $1,748 \div 38$ ?

- A 41
- B 43
- C 46
- D 48

27 The table shows the number of computers donated to a school by each of 4 companies.

**COMPUTERS DONATED TO A SCHOOL**

Company	Number of Computers
A	25
B	40
C	25
D	30

All the donated computers were shared equally by 5 classrooms. Which expression represents the number of computers each classroom received?

- A  $120 \times \frac{5}{4}$
- B  $120 \times \frac{1}{4}$
- C  $120 \times \frac{4}{5}$
- D  $120 \times \frac{1}{5}$

28 Which expression is equivalent to 83,120 in expanded form using powers of 10?

- A  $(8 \times 10^5) + (3 \times 10^4) + (1 \times 10^3) + (2 \times 10^2)$
- B  $(8 \times 10^4) + (3 \times 10^3) + (1 \times 10^3) + (2 \times 10^2)$
- C  $(8 \times 10^4) + (3 \times 10^3) + (1 \times 10^2) + (2 \times 10^1)$
- D  $(8 \times 10^1) + (3 \times 10^1) + (1 \times 10^1) + (2 \times 10^1)$

29 Which measurement is equivalent to 3 meters?

- A 9 centimeters
- B 36 centimeters
- C 100 centimeters
- D 300 centimeters

30 Mr. Davis is creating a spice mixture for a recipe.

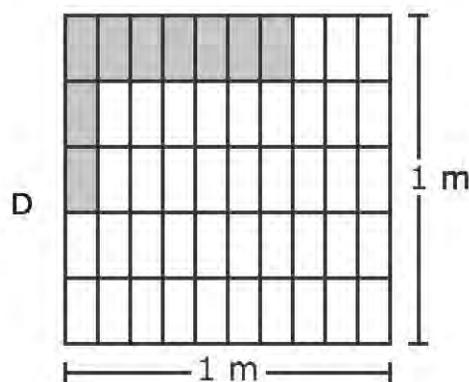
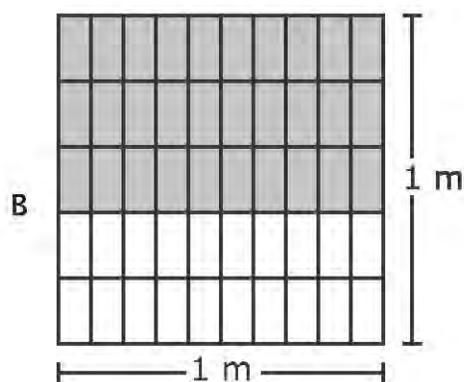
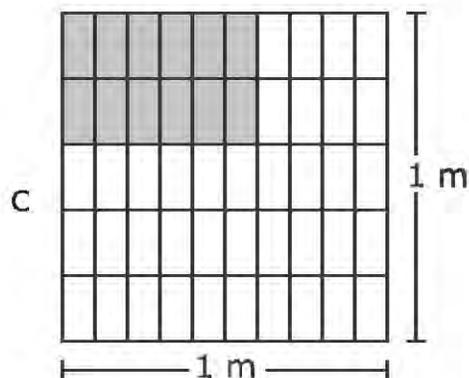
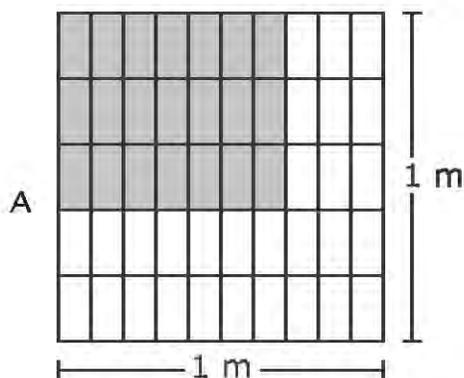
- $\frac{2}{5}$  of the spice mixture was oregano
- $\frac{1}{3}$  of the spice mixture was basil

The remaining spice mixture was chili powder. What fraction of the total amount of spice mixture was oregano and basil?

- A  $\frac{4}{15}$
- B  $\frac{3}{8}$
- C  $\frac{5}{8}$
- D  $\frac{11}{15}$

**GO ON**

- 40 Which model shows one way to determine the area of a rectangle that is  $\frac{7}{10}$  meter long and  $\frac{3}{5}$  meter wide?



- 41 A swimming pool is shaped like a right rectangular prism. The pool is 36 feet long and 20 feet wide. What is the total amount of water, in cubic feet, needed to fill the pool to a depth of 4 feet?

- A 800
- B 864
- C 2,880
- D 5,760

42

Kim's class voted on a location for a field trip.

- $\frac{3}{4}$  of the class voted for the museum
- $\frac{1}{8}$  of the class voted for the zoo

The rest of the class voted for the nature park.

What fraction of the class voted for the nature park?

A  $\frac{1}{8}$

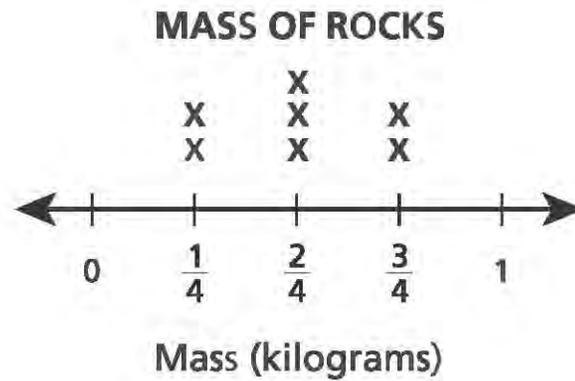
B  $\frac{1}{2}$

C  $\frac{5}{8}$

D  $\frac{7}{8}$

**GO ON**

- 43 Jen determined the masses of 7 rocks. She recorded the mass of each rock on the line plot below.



What is the total mass, in kilograms, of the 7 rocks?

- A  $1\frac{5}{8}$
- B  $1\frac{1}{2}$
- C  $3\frac{1}{4}$
- D  $3\frac{1}{2}$
- 44 To feed his plants, Logan creates a mixture that requires  $\frac{3}{8}$  cup of plant food for every gallon of water. If he uses  $10\frac{1}{2}$  gallons of water, what is the total amount of plant food he needs?
- A  $3\frac{15}{16}$  cups
- B  $6\frac{3}{10}$  cups
- C  $10\frac{3}{16}$  cups
- D  $10\frac{7}{8}$  cups

45 Which expression is equivalent to  $4 + [4 \times (5 - 2)] \div 2$ ?

A  $4 + 12 \div 2$

B  $4 + 18 \div 2$

C  $8 \times 3 \div 2$

D  $8 \times 5 - 1$

**STOP**

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**Grade 5**  
**2016 Common Core**  
**Mathematics Test**  
**Book 2**  
April 13–15, 2016

Name: \_\_\_\_\_



# *New York State Testing Program*

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## **2016 Common Core Mathematics Test Book 3**

# **Grade 5**

**April 13–15, 2016**

Released Questions

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

- 46 Rearrange the numbers below so that they are listed in numerical order from least to greatest.

34.039 32.94 34.198 32.102 33.6

**Answer** \_\_\_\_\_  
Least \_\_\_\_\_ Greatest

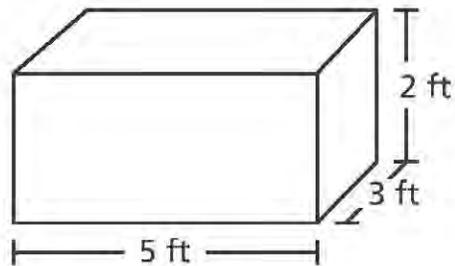
The number 33.01 is added to the list so that the new list is still in numerical order. Between which two numbers should 33.01 be placed?

**Answer** Between \_\_\_\_\_ and \_\_\_\_\_

**GO ON**

47

A toy company uses the box shown below to package wooden cubes.



Each wooden cube has a volume of  $\frac{1}{8}$  cubic foot. In total, how many wooden cubes will fit in the box?

**Show your work.**

**Answer** \_\_\_\_\_ wooden cubes

**GO ON**

48

A library had 6,422 music CDs stored on 26 shelves. If the same number of CDs were stored on each shelf, how many CDs were stored on each shelf?

*Show your work.*

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

**GO ON**

49

Describe the relationship between  $n$  and 4 that will make the value of the expression  $7 \times \frac{n}{4}$  greater than 7.

**Answer**

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Describe the relationship between  $a$  and  $b$  that will make the value of the expression  $7 \times \frac{a}{b}$  equal to 7.

**Answer**

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- 50 Rosalva and Jake walked a certain distance each day. They recorded the distances in the table shown below.

**DISTANCE WALKED**

	Rosalva (kilometers)	Jake (meters)
Monday	1.5	1,450
Tuesday	0.69	1,590
Wednesday	1.04	1,204
Thursday	2.1	1,977
Total		

What is the difference, in meters, between Rosalva's and Jake's total distances walked over the four days?

**Show your work.**

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

**GO ON**

Antoine wrote the expressions shown below.

- Expression A:  $4 \times [(1.5 + 100.25) \times 3.65]$
- Expression B:  $\square \times [(1.5 + 100.25) \times 3.65]$

The value of Expression B is eight times the value of Expression A. Without evaluating Expression A, determine what number belongs in the box in Expression B. Explain how you determined this number.

***Show your work or explain how you determined this number.***

***Answer***

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Andy has a collection of movie DVDs. In Andy's collection,

- $\frac{3}{5}$  of the DVDs are "Action," and
- $\frac{1}{4}$  of the DVDs are "Comedy."

Andy said that  $\frac{4}{9}$  of his collection is "Action" or "Comedy." Cynthia said that Andy made an error. Explain whether Andy is correct or incorrect and why.

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What fraction of the DVDs in Andy's collection is not "Action" or "Comedy?"

**Show your work.**

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

**GO ON**

- 53 Molly bought 12.5 yards of fabric for \$4.50 a yard to make dog beds. She uses 2.5 yards of fabric for each dog bed. She sells each dog bed for \$17.50. After subtracting the cost of the fabric, how much money does Molly earn if she sells all of the dog beds?

**Show your work.**

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

**GO ON**

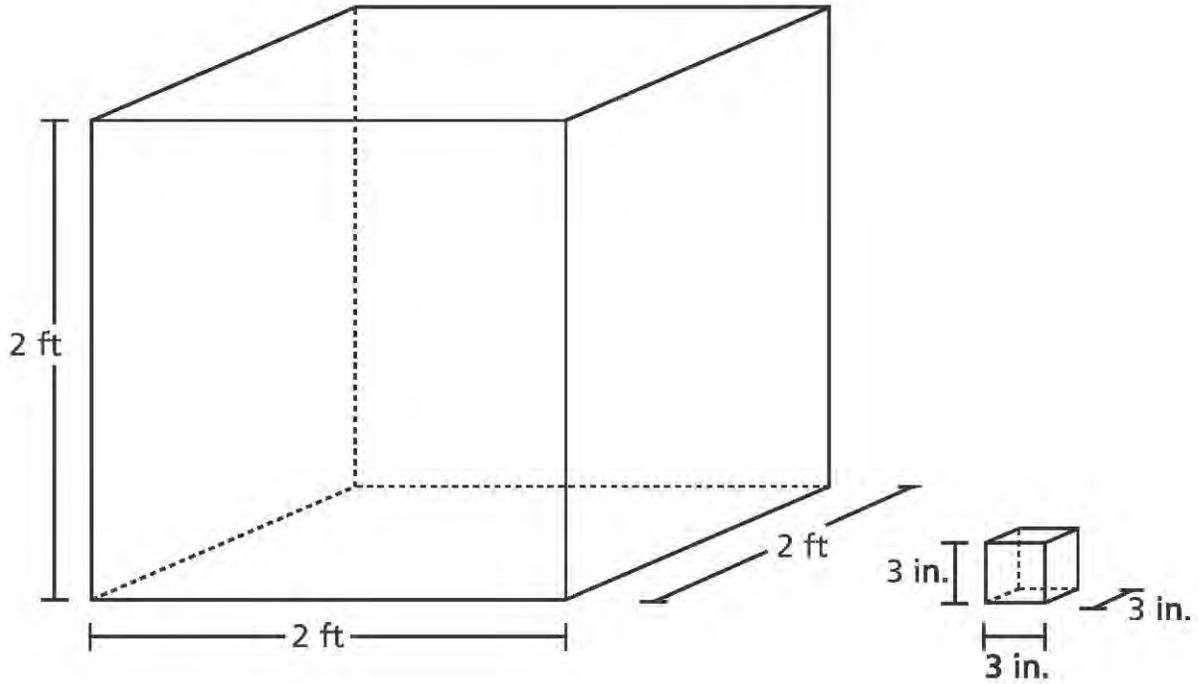
- 54 In a race that consisted of three parts, the cycling part was  $12\frac{1}{2}$  miles long. The running part of the race was  $\frac{1}{4}$  the distance of the cycling part. The kayaking part of the race was  $\frac{1}{2}$  the distance of the running part. What was the entire distance, in miles, of the race?

**Show your work.**

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

**GO ON**

- 55 A company puts bottles of lotion into boxes that are three-inch cubes. The boxes were then packed into a shipping crate, shown below.



How many boxes of lotion were packed into the shipping crate to fill it completely?

**Show your work.**

**Answer** \_\_\_\_\_ boxes of lotion

**STOP**



Place Student Label Here



**Grade 5**  
**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**

**Released Questions Available on EngageNY**

**Grade 5**

Question	Type	Key	Points	Standard	Cluster	Secondary Standard(s)	Multiple Choice Questions:	Constructed Response Questions:	
							Percentage of Students Who Answered Correctly (P-Value)	Average Points Earned	P-Value (Average Points Earned ÷ Total Possible Points)
<b>Book 1</b>									
1	Multiple Choice	D	1	CCSS.Math.Content.5.NBT.B.7	Number and Operations in Base Ten		0.57		
2	Multiple Choice	B	1	CCSS.Math.Content.5.NF.A.1	Number and Operations— Fractions		0.64		
3	Multiple Choice	C	1	CCSS.Math.Content.5.NBT.B.6	Number and Operations in Base Ten		0.86		
4	Multiple Choice	B	1	CCSS.Math.Content.5.NF.A.2	Number and Operations— Fractions		0.64		
5	Multiple Choice	D	1	CCSS.Math.Content.5.G.B.4	Geometry		0.68		
9	Multiple Choice	D	1	CCSS.Math.Content.5.NF.B.7b	Number and Operations— Fractions		0.45		
10	Multiple Choice	A	1	CCSS.Math.Content.5.MD.C.3b	Measurement and Data	CCSS.Math.Content.5.MD.C.3a	0.61		
13	Multiple Choice	A	1	CCSS.Math.Content.5.NF.B.4a	Number and Operations— Fractions		0.71		
14	Multiple Choice	B	1	CCSS.Math.Content.5.MD.C.4	Measurement and Data		0.64		
15	Multiple Choice	D	1	CCSS.Math.Content.5.MD.B.2	Measurement and Data	CCSS.Math.Content.5.NF.A.1	0.38		
16	Multiple Choice	A	1	CCSS.Math.Content.5.MD.A.1	Measurement and Data		0.49		
17	Multiple Choice	C	1	CCSS.Math.Content.4.NF.C.7	Number and Operations in Base Ten		0.62		
18	Multiple Choice	B	1	CCSS.Math.Content.5.NF.B.3	Number and Operations— Fractions		0.56		
<b>Book 2</b>									
23	Multiple Choice	D	1	CCSS.Math.Content.5.OA.A.1	Operations and Algebraic Thinking		0.75		
24	Multiple Choice	D	1	CCSS.Math.Content.5.G.B.4	Geometry		0.57		
25	Multiple Choice	C	1	CCSS.Math.Content.4.NF.C.6	Number and Operations in Base Ten		0.74		
26	Multiple Choice	C	1	CCSS.Math.Content.5.NBT.B.6	Number and Operations in Base Ten		0.78		
27	Multiple Choice	D	1	CCSS.Math.Content.5.NF.B.4a	Number and Operations— Fractions		0.46		
28	Multiple Choice	C	1	CCSS.Math.Content.5.NBT.A.2	Number and Operations in Base Ten	CCSS.Math.Content.5.OA.A.1	0.62		

## Grade 5

## Released Questions Available on EngageNY

Question	Type	Key	Points	Standard	Cluster	Secondary Standard(s)	Multiple Choice Questions:	Constructed Response Questions:			
							Percentage of Students Who Answered Correctly (P-Value)	Average Points Earned	P-Value (Average Points Earned ÷ Total Possible Points)		
29	Multiple Choice	D	1	CCSS.Math.Content.4.MD.A.1	Measurement and Data		0.63				
30*	Multiple Choice			* Based on statistical analyses, it has been determined that this question will not be counted in determining students' test scores.							
40	Multiple Choice	A	1	CCSS.Math.Content.5.NF.B.4b	Number and Operations— Fractions		0.60				
41	Multiple Choice	C	1	CCSS.Math.Content.5.MD.C.5b	Measurement and Data		0.72				
42	Multiple Choice	A	1	CCSS.Math.Content.5.NF.A.2	Number and Operations— Fractions		0.50				
43	Multiple Choice	D	1	CCSS.Math.Content.5.MD.B.2	Measurement and Data		0.52				
44	Multiple Choice	A	1	CCSS.Math.Content.5.NF.B.6	Number and Operations— Fractions		0.37				
45	Multiple Choice	A	1	CCSS.Math.Content.5.OA.A.1	Operations and Algebraic Thinking		0.74				
<b>Book 3</b>											
46	Constructed Response		2	CCSS.Math.Content.5.NBT.A.3	Number and Operations in Base Ten			1.17	0.59		
47	Constructed Response		2	CCSS.Math.Content.5.NF.B.7c	Number and Operations— Fractions	CCSS.Math.Content.5.MD.C.5		1.02	0.51		
48	Constructed Response		2	CCSS.Math.Content.5.NBT.B.6	Number and Operations in Base Ten			1.42	0.71		
49	Constructed Response		2	CCSS.Math.Content.5.NF.B.5b	Number and Operations— Fractions			0.91	0.45		
50	Constructed Response		2	CCSS.Math.Content.5.MD.A.1	Measurement and Data	CCSS.Math.Content.5.NBT.B.7		0.80	0.40		
51	Constructed Response		2	CCSS.Math.Content.5.OA.A.2	Operations and Algebraic Thinking			1.14	0.57		
52	Constructed Response		3	CCSS.Math.Content.5.NF.A.2	Number and Operations— Fractions			1.53	0.51		
53	Constructed Response		3	CCSS.Math.Content.5.NBT.B.7	Number and Operations in Base Ten			0.73	0.24		
54	Constructed Response		3	CCSS.Math.Content.5.NF.B.6	Number and Operations— Fractions	CCSS.Math.Content.5.NF.A.1		0.61	0.20		
55	Constructed Response		3	CCSS.Math.Content.5.MD.C.5b	Measurement and Data	CCSS.Math.Content.5.MD.A.1		0.60	0.20		

\*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.