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Our Students. Their Moment.

New York State Testing Program
Grade 5
Mathematics Test

Released Questions

June 2018

New York State administered the Mathematics Tests in May 2018
and is now making approximately 75% of the
questions from these tests available for review and use.

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

New York State Testing Program
Grades 3-8 Mathematics

Released Questions from 2018 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 number 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 2018 NYS Grades 3-8 English Language Arts and Mathematics test materials for review, discussion, and use.

For 2018, included in these released materials are at least 75 percent of the test questions that appeared on the 2018 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 https://www.engageny.org/resource/test-guides-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

2018 Mathematics Test Session 1

Grade 5

May 1–3, 2018

Released Questions

Grade 5 Mathematics Reference Sheet

CONVERSIONS

1 mile = 5,280 feet
1 mile = 1,760 yards

1 pound = 16 ounces
1 ton = 2,000 pounds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 liter = 1,000 cubic centimeters

FORMULAS

Right Rectangular Prism $V = Bh$ or $V = lwh$

Session 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 making your choice.
- 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.

1 Mr. Smith has 1,104 student photos to display around the school. He plans to put them on 48 poster boards with the same number of photos on each poster board. How many student photos will Mr. Smith place on each poster board?

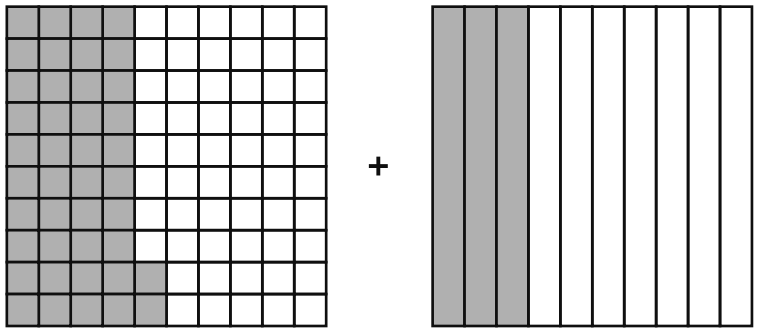
A 20

B 22

C 23

D 24

2 The shaded parts of the models below each represent a fraction.



What is the sum of the fractions?

A $\frac{45}{110}$

B $\frac{65}{110}$

C $\frac{70}{100}$

D $\frac{72}{100}$

GO ON

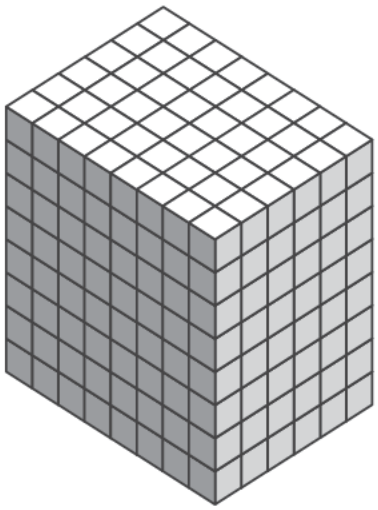
3 Jake used 1-centimeter cubes to build a right rectangular prism that has a volume of 24 cubic centimeters. Which figure could represent the prism that Jake built?

A

KEY

= 1 cubic cm

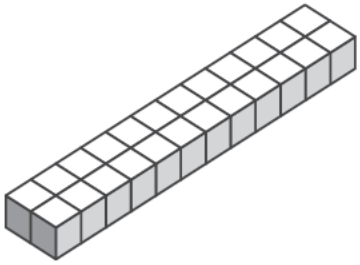
C



KEY

= 1 cubic cm

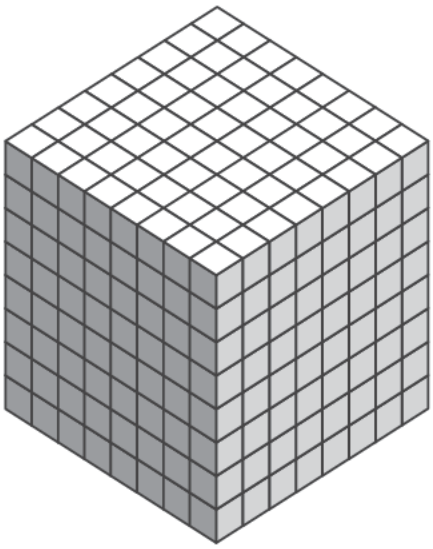
B



KEY

= 1 cubic cm

D



KEY

= 1 cubic cm

10 A school librarian ordered new books for the library. Of the new books ordered, $\frac{1}{3}$ are science, $\frac{2}{5}$ are biography, and the rest of the books are fiction. What fraction of the books ordered are fiction?

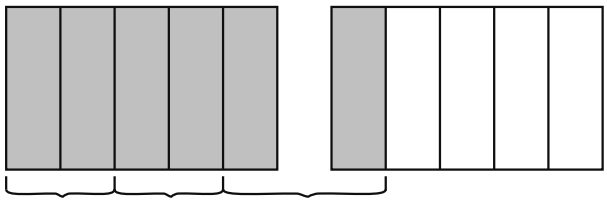
A $\frac{3}{5}$

B $\frac{3}{8}$

C $\frac{4}{15}$

D $\frac{11}{15}$

11 The model below is shaded to represent an expression.



Which expression represents the model?

A $\frac{1}{3} \times \frac{2}{5}$

B $\frac{1}{3} \times \frac{5}{2}$

C $3 \times \frac{2}{5}$

D $3 \times \frac{5}{2}$

GO ON

13 Which shape always has four congruent sides?

A parallelogram

B rectangle

C rhombus

D trapezoid

14 Which statement describes the value of the expression below?

$$67 \times \frac{1}{6}$$

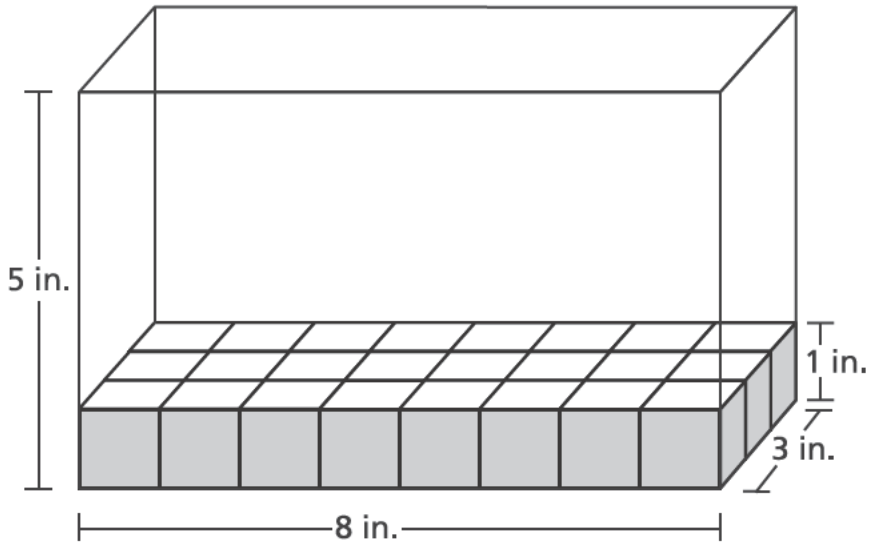
A The value is less than 67.

B The value is equal to 67.

C The value is greater than 67.

D The value is greater than 0 and less than 1.

17 The diagram below shows some 1-inch cubes placed in a box.



How many **more** 1-inch cubes are needed to completely fill the box?

A 16

B 24

C 96

D 120

18 Which expression has a value that is greater than 42.537 ?

A $(4 \times 10) + (2 \times 1) + \left(5 \times \frac{1}{10}\right) + \left(9 \times \frac{1}{100}\right) + \left(3 \times \frac{1}{1{,}000}\right)$

B $(4 \times 10) + (1 \times 1) + \left(6 \times \frac{1}{10}\right) + \left(2 \times \frac{1}{100}\right) + \left(5 \times \frac{1}{1{,}000}\right)$

C $(4 \times 10) + (2 \times 1) + \left(5 \times \frac{1}{10}\right) + \left(3 \times \frac{1}{100}\right) + \left(7 \times \frac{1}{1{,}000}\right)$

D $(4 \times 10) + (2 \times 1) + \left(5 \times \frac{1}{10}\right) + \left(1 \times \frac{1}{100}\right) + \left(9 \times \frac{1}{1{,}000}\right)$

24 A state fair held a heaviest-pumpkin contest. The winning pumpkin weighed 2,050 pounds. What is the weight, in ounces, of the winning pumpkin?

A 8,200

B 16,400

C 24,600

D 32,800

25 Which expression can be used to represent 8 more than the product of 15 and 12 ?

A $15 \times 12 + 8$

B $(15 + 12) \times 8$

C $15 \times 12 \times 8$

D $15 \times (12 + 8)$

28 The volume of a single layer in a rectangular prism is 18 cubic centimeters. There are 5 layers in this rectangular prism. What is the volume, in cubic centimeters, of this rectangular prism?

A 90

B 23

C 13

D 3.6

29 Which situation could the expression $\frac{1}{4} \div 3$ represent?

A $\frac{1}{4}$ of a package of pencils shared equally among three friends

B the number of $\frac{1}{4}$-cup servings in three cups of popcorn

C $\frac{1}{3}$ of a stadium split into four equal sections

D a four-foot-long rope cut into $\frac{1}{3}$-foot pieces

30 Caley builds a rectangular prism using 18 cubes that each measure 1 centimeter on each side. What could be the dimensions of her rectangular prism?

A length: 2 cm width: 2 cm height: 3 cm

B length: 2 cm width: 3 cm height: 3 cm

C length: 3 cm width: 3 cm height: 3 cm

D length: 6 cm width: 6 cm height: 6 cm

STOP

Grade 5
2018
Mathematics Test
Session 1
May 1–3, 2018

Name: _____

New York State Testing Program

2018 Mathematics Test Session 2

Grade 5

May 1–3, 2018

Released Questions

Grade 5 Mathematics Reference Sheet

CONVERSIONS

1 mile = 5,280 feet
1 mile = 1,760 yards

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1 ton = 2,000 pounds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 liter = 1,000 cubic centimeters

FORMULAS

Right Rectangular Prism $V = Bh$ or $V = lwh$

Session 2

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 making your choice or writing 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.
- Be sure to show your work when asked.

31 How many $\frac{1}{3}$-cup servings are in 4 cups?

A $\frac{1}{12}$

B $\frac{3}{4}$

C 4

D 12

32 What is the value of $9\frac{2}{3} - 4\frac{1}{5}$?

A $5\frac{1}{8}$

B $5\frac{7}{8}$

C $5\frac{5}{15}$

D $5\frac{7}{15}$

33 Which decimal number is equivalent to $\frac{73}{100}$?

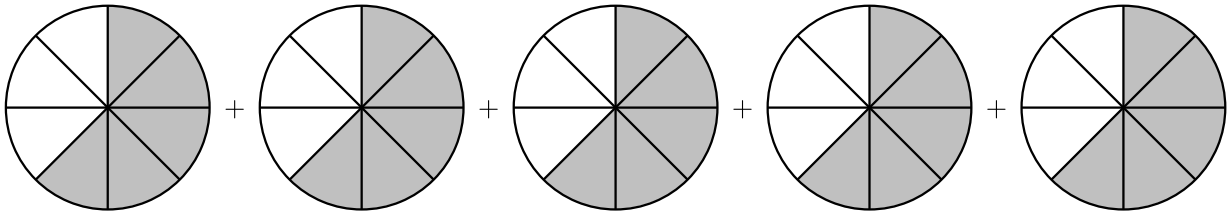
A 0.73

B 7.30

C 73.100

D 100.73

34 Which expression could be represented by the shaded parts of the model below?



A $\frac{5}{8} + \frac{5}{5}$

B $\frac{5}{8} \times \frac{5}{5}$

C $\frac{5}{8} + 5$

D $\frac{5}{8} \times 5$

35 Three boxes are shipped on a truck. Each box has a base of 16 square feet. Two of the boxes have a height of 3 feet and one box has a height of 5 feet. What is the total volume, in cubic feet, of the three boxes?

A 240

B 176

C 144

D 128

36 Lin's goal is to drink 8 cups of water every day. She drank 37 ounces before lunch today. How much more water does Lin need to drink today to reach her goal?

A 27 ounces

B 29 ounces

C 59 ounces

D 91 ounces

37 Ursula drew a polygon in which all the angles were obtuse. What kind of polygon could she have drawn?

A trapezoid

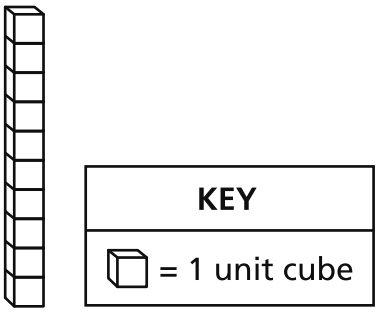
B parallelogram

C triangle

D pentagon

GO ON

38 Anna is building a figure that has three columns of unit cubes. The first column is shown below.



The other two columns each have four fewer unit cubes than the first column. What is the volume, in cubic units, of Anna's figure?

A 12

B 16

C 22

D 24

39 Samantha is using a 2-liter pitcher to serve lemonade to 10 of her friends. How many times will she need to fill the pitcher in order to serve each friend 400 milliliters of lemonade?

Show your work.

Answer _____ times

GO ON

40 Write a number in which the value of the digit 3 is 10 times the value of the digit 3 in 156.32. Explain how you know the number you wrote is correct.

Answer

41 Mark and his friends order two pizzas of the same size.

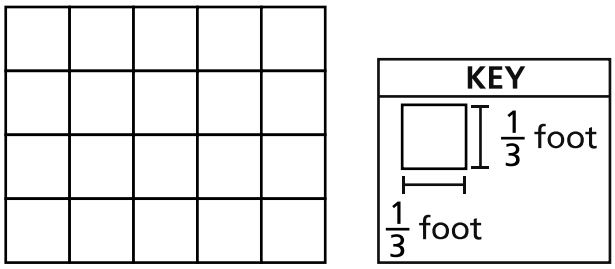
- The first pizza is cut into 6 slices of equal size.
- The second pizza is cut into 4 slices of equal size.

Each person plans to take 2 slices of pizza. Mark concludes that he would get more pizza by taking 1 slice from each pizza, instead of 2 slices from the first pizza. Explain why Mark is correct. Be sure to include a number comparison using > or < in your explanation.

Answer

42 A section of a rectangular floor is covered with square floor tiles, as shown below.

Each square tile has a side length of $\frac{1}{3}$ foot.



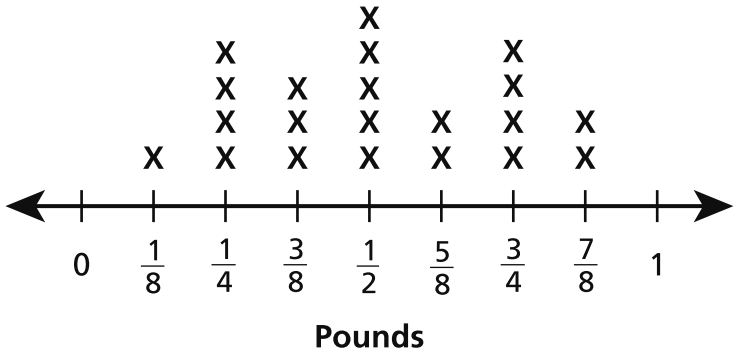
What is the area, in square feet, of the section of the rectangular floor that is covered with floor tiles?

Show your work.

Answer _____ square feet

43 The line plot shows the number of bags of grapes, grouped by weight, to the nearest $\frac{1}{8}$ pound.

WEIGHT OF BAGS OF GRAPES



How many bags of grapes had a weight of $\frac{3}{8}$ pound or less?

Answer _____ bags

What was the total weight of the grapes in the bags that had a weight of $\frac{3}{8}$ pound or less?

Show your work.

Answer _____ pound(s)

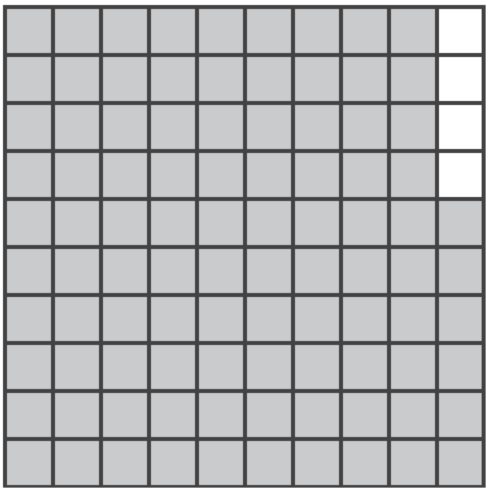
GO ON

44 At the Middleton School festival, a tent covers a rectangular space $30\frac{1}{2}$ yards long and $9\frac{1}{3}$ yards wide. What is the area, in square yards, covered by the tent?

Show your work.

Answer _____ square yards

45 Kia purchased books at a book fair. The shaded part of the decimal grid below represents the part of $1.00 that she has remaining after purchasing her books.



Kia decides to give all of the money she has remaining to her 3 friends so they can buy some bookmarks which cost $0.10 each. If Kia gives each of her friends the same amount of money, what is the greatest number of bookmarks that each of her friends can buy?

Show your work.

Answer _____ bookmarks per friend

STOP

Grade 5
2018
Mathematics Test
Session 2
May 1–3, 2018

THE STATE EDUCATION DEPARTMENT

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

2018 Mathematics Tests Map to the Standards

Grade 5 Released Questions on EngageNY

Question	Type	Key	Points	Standard	Cluster	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)
Session 1								
1	Multiple Choice	C	1	CCSS.Math.Content.5.NBT.B.6	Number and Operations in Base Ten	0.74		
2	Multiple Choice	D	1	CCSS.Math.Content.4.NF.C.5	Number and Operations— Fractions	0.70		
3	Multiple Choice	B	1	CCSS.Math.Content.5.MD.C.5a	Measurement and Data	0.90		
10	Multiple Choice	C	1	CCSS.Math.Content.5.NF.A.1	Number and Operations— Fractions	0.54		
11	Multiple Choice	C	1	CCSS.Math.Content.5.NF.B.4	Number and Operations— Fractions	0.56		
13	Multiple Choice	C	1	CCSS.Math.Content.5.G.B.4	Geometry	0.36		
14	Multiple Choice	A	1	CCSS.Math.Content.5.NF.B.5	Number and Operations— Fractions	0.59		
17	Multiple Choice	C	1	CCSS.Math.Content.5.MD.C.3	Measurement and Data	0.47		
18	Multiple Choice	A	1	CCSS.Math.Content.5.NBT.A.3a	Number and Operations in Base Ten	0.57		
24	Multiple Choice	D	1	CCSS.Math.Content.5.MD.A.1	Measurement and Data	0.66		
25	Multiple Choice	A	1	CCSS.Math.Content.5.OA.A.2	Operations and Algebraic Thinking	0.55		
28	Multiple Choice	A	1	CCSS.Math.Content.5.MD.C.3b	Measurement and Data	0.87		
29	Multiple Choice	A	1	CCSS.Math.Content.5.NF.B.7a	Number and Operations— Fractions	0.73		
30	Multiple Choice	B	1	CCSS.Math.Content.5.MD.C.5a	Measurement and Data	0.70		
Session 2								
31	Multiple Choice	D	1	CCSS.Math.Content.5.NF.B.7c	Number and Operations— Fractions	0.41		
32	Multiple Choice	D	1	CCSS.Math.Content.5.NF.A.1	Number and Operations— Fractions	0.78		

Question	Type	Key	Points	Standard	Cluster	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)
Session 2 continued								
33	Multiple Choice	A	1	CCSS.Math.Content.4.NF.C.6	Number and Operations in Base Ten	0.86		
34	Multiple Choice	D	1	CCSS.Math.Content.5.NF.B.6	Number and Operations— Fractions	0.75		
35	Multiple Choice	B	1	CCSS.Math.Content.5.MD.C.5b	Measurement and Data	0.44		
36	Multiple Choice	A	1	CCSS.Math.Content.5.MD.A.1	Measurement and Data	0.58		
37	Multiple Choice	D	1	CCSS.Math.Content.5.G.B.4	Geometry	0.49		
38	Multiple Choice	C	1	CCSS.Math.Content.5.MD.C.4	Measurement and Data	0.62		
39	Constructed Response		2	CCSS.Math.Content.5.MD.A.1	Measurement and Data		0.68	0.34
40	Constructed Response		2	CCSS.Math.Content.5.NBT.A.1	Number and Operations in Base Ten		0.92	0.46
41	Constructed Response		2	CCSS.Math.Content.5.NF.A.2	Number and Operations— Fractions		0.66	0.33
42	Constructed Response		2	CCSS.Math.Content.5.NF.B.4b	Number and Operations— Fractions		0.76	0.38
43	Constructed Response		2	CCSS.Math.Content.5.MD.B.2	Measurement and Data		0.88	0.44
44	Constructed Response		2	CCSS.Math.Content.5.NF.B.6	Number and Operations— Fractions		0.68	0.34
45	Constructed Response		3	CCSS.Math.Content.5.NBT.B.7	Number and Operations in Base Ten		1.17	0.39

*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.