



New York State  
**EDUCATION DEPARTMENT**  
Knowledge > Skill > Opportunity

**New York State Testing Program  
Grade 6  
Mathematics Test**

**Released Questions**

**2022**

New York State administered the Mathematics Tests in May 2022 and is now making approximately 75% of the questions from these tests available for review and use.



# **New York State Testing Program Grades 3–8 Mathematics**

## **Released Questions from 2022 Exams**

### ***Background***

As in past years, SED is releasing large portions of the 2022 NYS Grades 3–8 English Language Arts and Mathematics test materials for review, discussion, and use.

For 2022, included in these released materials are at least 75 percent of the test questions that appeared on the 2022 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 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.nysed.gov/state-assessment/grades-3-8-ela-and-math-test-manuals>.

## **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 it is possible to develop future tests, some content must remain secure. 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.

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



# *New York State Testing Program*

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## **2022 Mathematics Test Session 1**

# **Grade 6**

**April 26–28, 2022**

**RELEASED QUESTIONS**

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**Session 1**

# Grade 6 Mathematics Reference Sheet

## CONVERSIONS

1 inch = 2.54 centimeters

1 meter = 39.37 inches

1 mile = 5,280 feet

1 mile = 1,760 yards

1 mile = 1.609 kilometers

1 kilometer = 0.62 mile

1 pound = 16 ounces

1 pound = 0.454 kilogram

1 kilogram = 2.2 pounds

1 ton = 2,000 pounds

1 cup = 8 fluid ounces

1 pint = 2 cups

1 quart = 2 pints

1 gallon = 4 quarts

1 gallon = 3.785 liters

1 liter = 0.264 gallon

1 liter = 1,000 cubic centimeters

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## FORMULAS

**Triangle**

$$A = \frac{1}{2}bh$$

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**Right Rectangular Prism**

$$V = Bh \text{ or } V = lwh$$

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# 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**

Which value of  $m$  makes the inequality true?

$$3m - 4 < 11$$

- A 4
- B 5
- C 6
- D 7

**2**

A farmer places beehives containing bees in her orchard to pollinate the plants. The table below shows the ratio of the number of beehives to the number of acres in the orchard.

**BEEHIVES PER ACRE**

<b>Number of Beehives</b>	3	9	12	18
<b>Number of Acres</b>	8	24	32	?

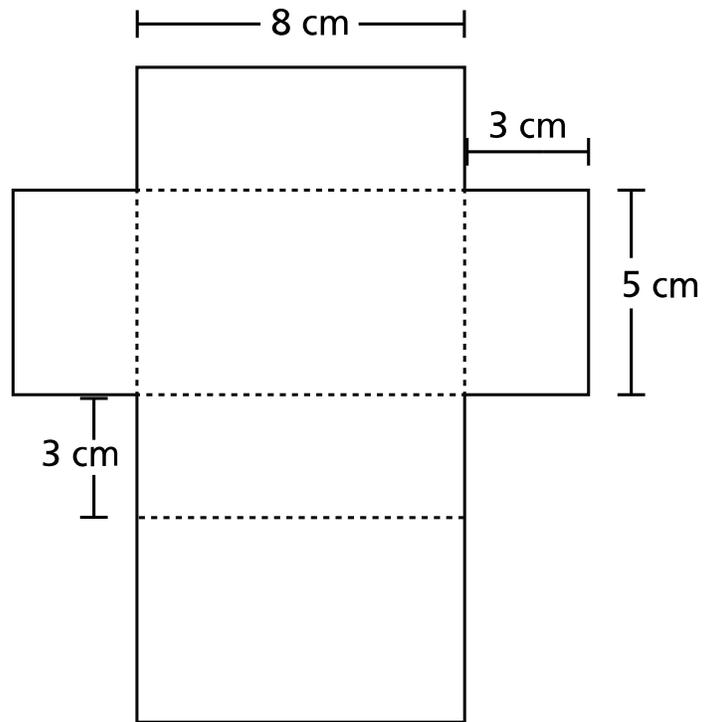
If the bees pollinate the plants at a constant rate, how many acres will be pollinated by the bees in 18 beehives?

- A 38
- B 40
- C 44
- D 48

**GO ON**

3

The net of a rectangular prism is shown below.



What is the surface area, in square centimeters, of the rectangular prism?

- A 60
- B 79
- C 158
- D 360

**4**

Jake takes guitar lessons that cost \$120.00 per month. Which equation can be used to determine the total number of dollars,  $d$ , that Jake pays for lessons for any number of months,  $m$ ?

**A**  $d = 120 \times m$

**B**  $m = 120 \times d$

**C**  $d = 120 + m$

**D**  $m = 120 + d$

**5**

Claire has 6 large envelopes and 11 small envelopes. What is the ratio of large envelopes to the total number of envelopes?

**A** 5 : 11

**B** 6 : 11

**C** 6 : 17

**D** 11 : 17

**GO ON**

**11**

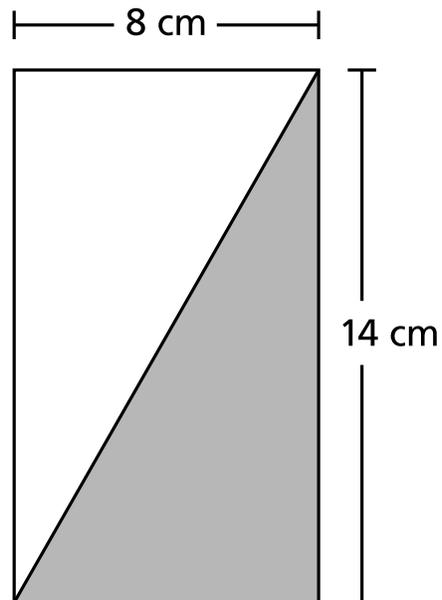
What is the value of the expression shown below when  $x = 7$ ?

$$3x^2 - 2x + 3$$

- A 31
- B 50
- C 136
- D 164

**12**

A partially shaded rectangle is shown below.



What is the area, in square centimeters, of the shaded part of the rectangle?

- A 28
- B 44
- C 56
- D 112

**GO ON**

- 15** A group of 10 Science Club students is on a field trip. That number of students represents 20% of the total number of students in the Science Club. What is the total number of students in the Science Club?

A 20  
B 30  
C 50  
D 80

- 16** Which value of  $x$  makes the equation true?

$$4x - 8 = 4$$

A 1  
B 3  
C 4  
D 9

- 17** Employees at a construction company are building a fence around the perimeter of a work site. The perimeter of the work site is  $\frac{1}{4}$  mile. The cost of the fence is \$20.00 per yard.

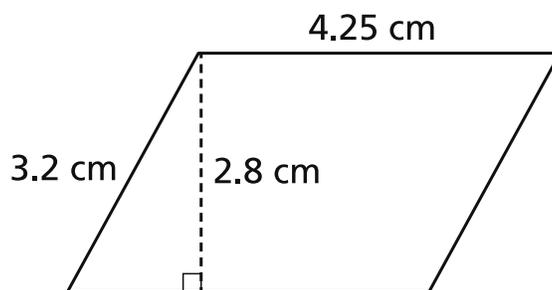
What is the total cost of the fence needed for the perimeter of the work site?

A \$5,000.00  
B \$8,800.00  
C \$17,600.00  
D \$26,400.00

- 22 Ralph has  $\frac{3}{4}$  gallon of paint. He wants to store all of the paint equally among 5 containers. How much paint, in gallons, will Ralph store in each container?

- A  $\frac{3}{20}$
- B  $\frac{8}{5}$
- C  $\frac{15}{4}$
- D  $\frac{17}{4}$

- 23 A parallelogram is shown below.



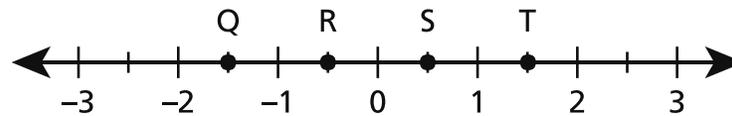
What is the area, in square centimeters, of the parallelogram?

- A 8.96
- B 10.25
- C 11.9
- D 13.6

**GO ON**

**26**

A number line with points Q, R, S, and T is shown below.



What point represents  $-\frac{1}{2}$ ?

- A point Q
- B point R
- C point S
- D point T

**27**

Ms. Wilson is buying packages of pencils. Each package costs \$11.52 and contains 96 pencils. What is the unit price of a pencil?

- A \$0.12
- B \$0.96
- C \$1.20
- D \$1.92

**28**

Three vertices of a rectangle are located at  $(2, 4)$ ,  $(-2, -5)$ , and  $(-2, 4)$  on a coordinate plane. What are the coordinates of the fourth vertex of the rectangle?

- A  $(2, 5)$
- B  $(2, -5)$
- C  $(5, 2)$
- D  $(-5, -2)$

**GO ON**

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**Grade 6**  
**2022**  
**Mathematics Test**  
**Session 1**  
April 26–28, 2022

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



# *New York State Testing Program*

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**2022**

**Mathematics Test**

**Session 2**

**Grade 6**

**April 26–28, 2022**

**RELEASED QUESTIONS**

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## FORMULAS

**Triangle**

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---

**Right Rectangular Prism**

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# Session 2



## TIPS FOR TAKING THE TEST

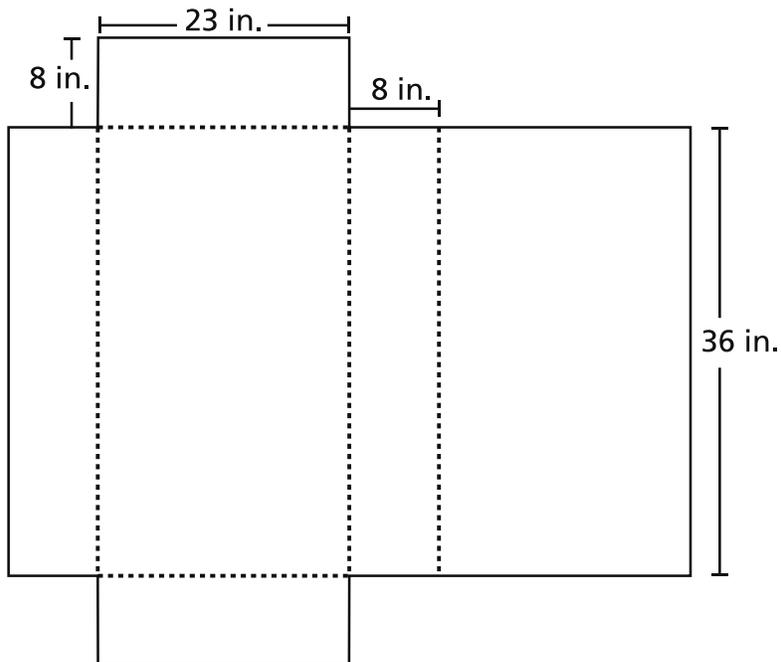
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- Read each question carefully and think about the answer before making your choice or writing your response.
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- Be sure to show your work when asked.

32 There are red tiles and blue tiles in a box. The ratio of red tiles to blue tiles is 3 : 5. There are 12 more blue tiles than red tiles in the box. How many red tiles are in the box?

- A 18
- B 20
- C 30
- D 48

33 What is the surface area, in square inches, of the rectangular prism formed by folding the net below?



- A 1,300
- B 2,232
- C 2,416
- D 2,600

**GO ON**

34

Jasmine goes to the store to buy some fruit to make a fruit salad. The list below shows the amount and the price of each type of fruit she buys.

- 3 pounds of apples for \$4.05
- 2 pounds of grapes for \$4.80
- 5 pounds of oranges for \$7.50
- 3 pounds of peaches for \$4.65

Which type of fruit costs \$1.55 per pound?

- A apples
- B grapes
- C oranges
- D peaches

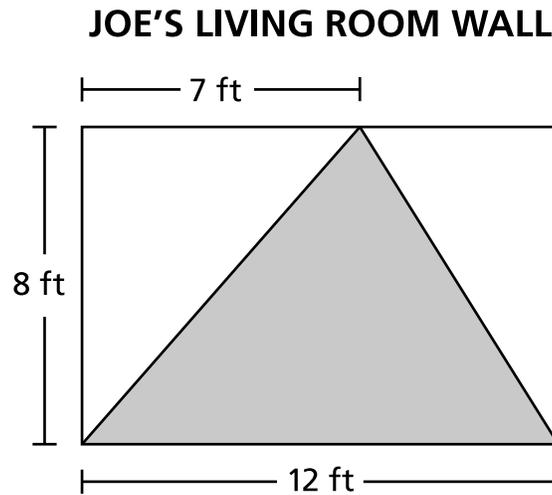
35

The outside temperature in a town is  $-20$  degrees Fahrenheit. What change in temperature, in degrees Fahrenheit, would bring the outside temperature to 0 degrees Fahrenheit?

- A  $-21$
- B  $-20$
- C 0
- D 20

36

A diagram of Joe's living room wall with a geometric design is shown. Joe painted the shaded triangle on the living room wall.



What is the area, in square feet, of the shaded triangle that Joe painted?

- A 20
- B 28
- C 48
- D 96

37

There was a total of 640 students at a school on Friday. Every student either walked or rode in a bus to the school. If 45% of the total number of students walked to the school on Friday, how many of the students rode in a bus to the school?

- A 288
- B 352
- C 585
- D 595

**GO ON**

**38**

Josh has  $c$  coins. Nick has 4 fewer than 3 times as many coins as Josh. Which expression can be used to show how many coins Nick has?

**A**  $3c - 4$

**B**  $3 - 4c$

**C**  $4c - 3$

**D**  $4 - 3c$

**GO ON**

39

Two students, Student A and Student B, claim to know the correct representation of the

expression  $\frac{9}{y}(3t)$ .

- Student A represents the expression as the product of 9 and  $y$  times the product of 3 and  $t$ .
- Student B represents the expression as the quotient of 9 and  $y$  times the sum of 3 and  $t$ .

Both students' claims are incorrect. What makes each representation incorrect?

*Explain your answer.*

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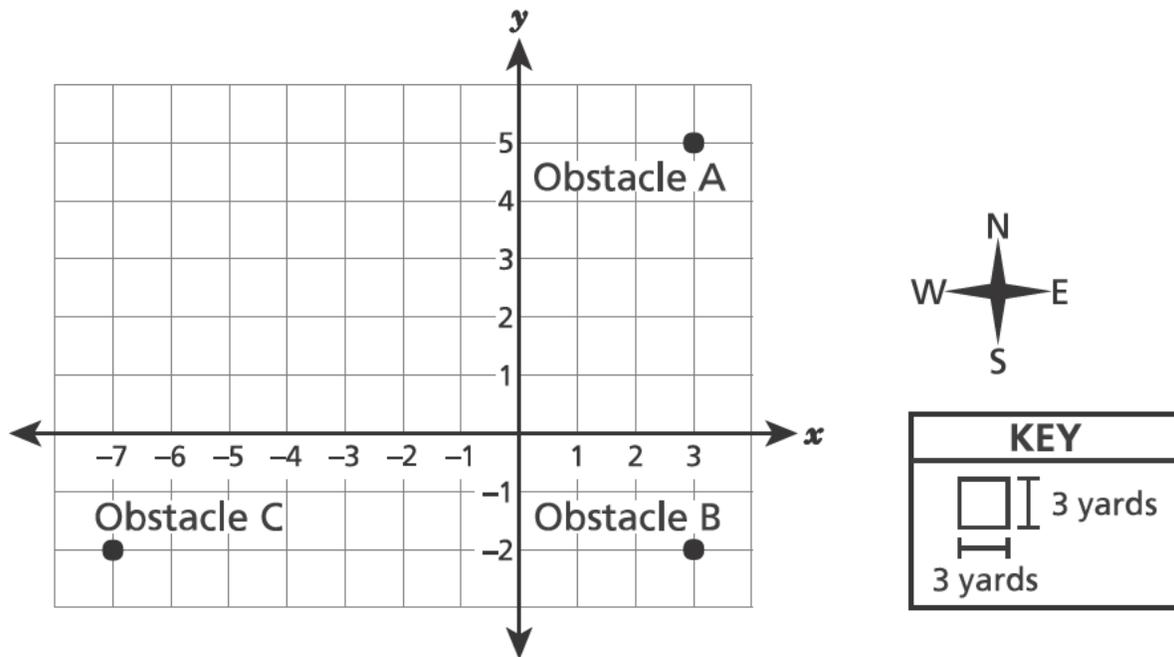
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**GO ON**

40

A track coach creates an obstacle course for his team. The coach plots the locations of three obstacles on the coordinate plane shown below.



Each unit on the coordinate plane represents 3 yards. A student starts at Obstacle A, then runs south to Obstacle B, and then runs west to Obstacle C. What is the total distance, in yards, the student runs to get from Obstacle A to Obstacle C?

*Show your work.*

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

**GO ON**

41

A restaurant owner orders new plates and spoons based on the information below.

- plates are sold in packages of 9
- spoons are sold in packages of 12

The restaurant owner orders an equal number of plates and spoons. What is the **least** number of packages of plates and packages of spoons she should order to have an equal number of plates and spoons?

*Show your work.*

*Answer* \_\_\_\_\_ packages of plates  
\_\_\_\_\_ packages of spoons

**GO ON**

42

A cereal box has dimensions of 12 inches,  $7\frac{3}{4}$  inches, and 2 inches. A pastry box has dimensions of  $3\frac{2}{3}$  inches,  $3\frac{1}{2}$  inches, and  $2\frac{1}{3}$  inches. What is the difference in volume, in cubic inches, between the two boxes?

*Show your work.*

*Answer* \_\_\_\_\_ cubic inches

**GO ON**

**43**

Two students evaluate the expression  $17(4 + 15)$ .

- Student A evaluates the expression by adding the product of 17 and 4 to the product of 17 and 15.
- Student B evaluates the expression by determining the product of 17 and 19.

Is each student's evaluation correct or incorrect?

*Explain your answer.*

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**GO ON**

44

Ryan delivers flowers to two customers. He drives for 12 minutes at an average speed of 40 miles per hour to reach his first customer. He then drives for 15 minutes at an average speed of 50 miles per hour to reach his second customer. During the 27 minutes of driving time, how many total miles does Ryan drive?

*Show your work.*

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

**GO ON**

45

Johnny is 21 years old. He is 3 times as old as Becky. Write and solve an equation to determine Becky's age,  $a$ .

*Show your work.*

*Answer*  $a =$  \_\_\_\_\_

**GO ON**

46

An office supply store sells boxes of pencils. Each box contains 160 pencils. Write an equation that represents the total number of pencils,  $y$ , in  $x$  boxes.

*Equation* \_\_\_\_\_

If  $x = 12$  for one day of sales, use your equation to find the total number of pencils the supply store sells.

*Show your work.*

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

**STOP**

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**Grade 6**  
**2022**  
**Mathematics Test**  
**Session 2**  
April 26–28, 2022

**THE STATE EDUCATION DEPARTMENT**  
**THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234**  
**2022 Mathematics Tests Map to the Standards**  
**Grade 6 Released Questions**

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)
<b>Session 1</b>								
1	Multiple Choice	A	1	CCSS.Math.Content.6.EE.B.5	Expressions and Equations	0.68		
2	Multiple Choice	D	1	CCSS.Math.Content.6.RP.A.3a	Ratios and Proportional Relationships	0.53		
3	Multiple Choice	C	1	CCSS.Math.Content.6.G.A.4	Geometry	0.54		
4	Multiple Choice	A	1	CCSS.Math.Content.6.EE.C.9	Expressions and Equations	0.71		
5	Multiple Choice	C	1	CCSS.Math.Content.6.RP.A.1	Ratios and Proportional Relationships	0.55		
11	Multiple Choice	C	1	CCSS.Math.Content.6.EE.A.2c	Expressions and Equations	0.49		
12	Multiple Choice	C	1	CCSS.Math.Content.6.G.A.1	Geometry	0.5		
15	Multiple Choice	C	1	CCSS.Math.Content.6.RP.A.3c	Ratios and Proportional Relationships	0.63		
16	Multiple Choice	B	1	CCSS.Math.Content.6.EE.B.5	Expressions and Equations	0.62		
17	Multiple Choice	B	1	CCSS.Math.Content.6.RP.A.3d	Ratios and Proportional Relationships	0.54		
22	Multiple Choice	A	1	CCSS.Math.Content.6.NS.A.1	The Number System	0.55		
23	Multiple Choice	C	1	CCSS.Math.Content.6.G.A.1	Geometry	0.33		
26	Multiple Choice	B	1	CCSS.Math.Content.6.NS.C.6c	The Number System	0.51		
27	Multiple Choice	A	1	CCSS.Math.Content.6.RP.A.2	Ratios and Proportional Relationships	0.59		

28	Multiple Choice	B	1	CCSS.Math.Content.6.G.A.3	Geometry	0.56		
<b>Session 2</b>								
32	Multiple Choice	A	1	CCSS.Math.Content.6.RP.A.3a	Ratios and Proportional Relationships	0.53		
33	Multiple Choice	D	1	CCSS.Math.Content.6.G.A.4	Geometry	0.43		
34	Multiple Choice	D	1	CCSS.Math.Content.6.RP.A.2	Ratios and Proportional Relationships	0.79		
35	Multiple Choice	D	1	CCSS.Math.Content.6.NS.C.5	The Number System	0.72		
36	Multiple Choice	C	1	CCSS.Math.Content.6.G.A.1	Geometry	0.53		
37	Multiple Choice	B	1	CCSS.Math.Content.6.RP.A.3c	Ratios and Proportional Relationships	0.38		
38	Multiple Choice	A	1	CCSS.Math.Content.6.EE.B.6	Expressions and Equations	0.61		
39	Constructed Response		2	CCSS.Math.Content.6.EE.A.2a	Expressions and Equations		0.8	0.4
40	Constructed Response		2	CCSS.Math.Content.6.NS.C.8	The Number System		0.93	0.46
41	Constructed Response		2	CCSS.Math.Content.6.NS.B.4	The Number System		1.09	0.54
42	Constructed Response		2	CCSS.Math.Content.6.G.A.2	Geometry		0.44	0.22
43	Constructed Response		2	CCSS.Math.Content.6.EE.A.3	Expressions and Equations		0.73	0.36
44	Constructed Response		2	CCSS.Math.Content.6.RP.A.3b	Ratios and Proportional Relationships		0.25	0.12
45	Constructed Response		2	CCSS.Math.Content.6.EE.B.7	Expressions and Equations		1.04	0.52
46	Constructed Response		3	CCSS.Math.Content.6.EE.C.9	Expressions and Equations		1.64	0.55

\*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.