New York State
EDUCATION DEPARTMENT
Knowledge › Skill › Opportunity

New York State Testing Program
Grade 6
Mathematics Test

Released Questions

2023

New York State administered the Mathematics Tests in May 2023 and is making approximiately 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 2023 Exams

Background

As in past years, SED is releasing large portions of the 2023 NYS Grades 3–8 English Language Arts and Mathematics test materials for review, discussion, and use.

For 2023, included in these released materials are at least 75 percent of the test questions that appeared on the 2023 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 Next Generation 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.

One-Credit Constructed-Response Questions

One-credit constructed-response questions require students to complete a task and provide only their final answer. These one-credit questions will often require multiple steps, assessing procedural skills, as well as conceptual understanding and application. While students may show how they arrived at their final answer, only the final answer will be scored.

Two-Credit Constructed-Response Questions

Two-credit constructed-response questions require students to complete tasks and show their work. These two-credit 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.

Three-Credit Constructed-Response Questions

Three-credit constructed-response questions ask students to show their work in completing two or more tasks or a more extensive problem. These three-credit response questions allow students to show their understanding of mathematical procedures, conceptual understanding, and application. Three-credit response questions may also assess student reasoning and the ability to critique the arguments of others. The scoring rubric for all 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 Next Generation Learning Standards Alignment

The alignment(s) to the New York State P–12 Next Generation 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-credit and three-credit 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 Next Generation 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

2023 Mathematics Test Session 1

Grade 6

May 2–4, 2023

RELEASED QUESTIONS

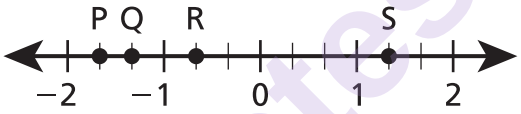
Session 1

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.

2 Points P, Q, R, and S are plotted on the number line shown below.



What point represents the location of the value $-1\frac{1}{3}$?

A point P

B point Q

C point R

D point S

3 A bakery owner bakes 450 cookies each day. Which equation can be used to determine the number of cookies, c, the owner bakes for any number of days, d ?

A $c = d + 450$

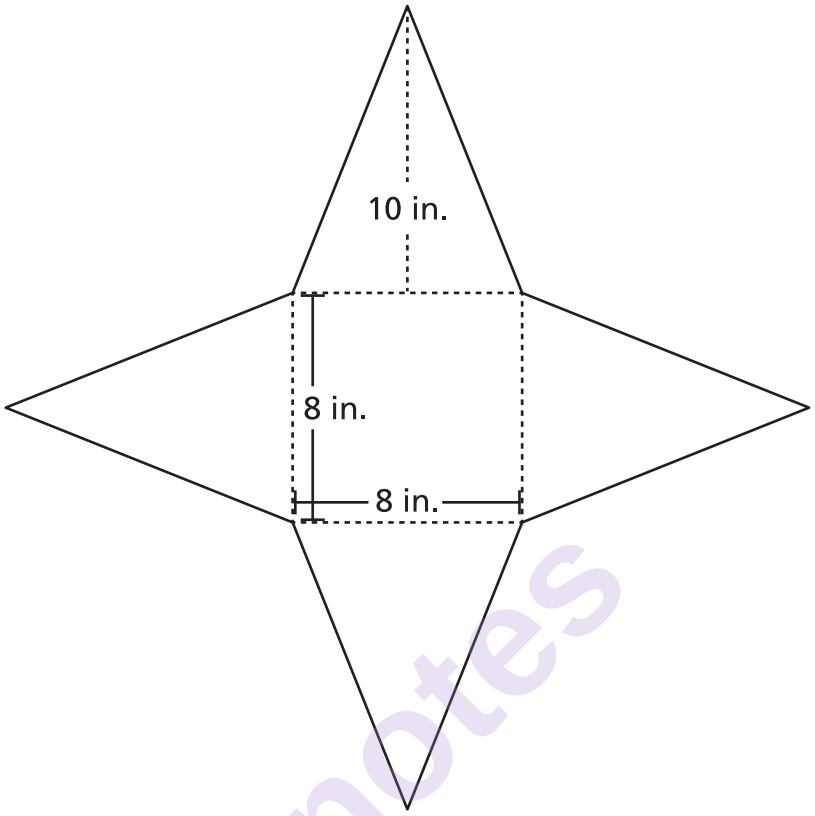
B $d = c + 450$

C $450d = c$

D $450c = d$

GO ON

7 The net of a right square pyramid is shown below.



What is the surface area, in square inches, of the square pyramid?

A 64

B 80

C 224

D 384

12 Which expression is equivalent to 14 less than the product of 8 and y ?

A $14 - 8y$

B $14 - \frac{y}{8}$

C $8y - 14$

D $\frac{y}{8} - 14$

13 What is the least common multiple of 9 and 12 ?

A 3

B 36

C 72

D 108

14 What is the value of the expression $\frac{3(7-2)+5^3}{2}$?

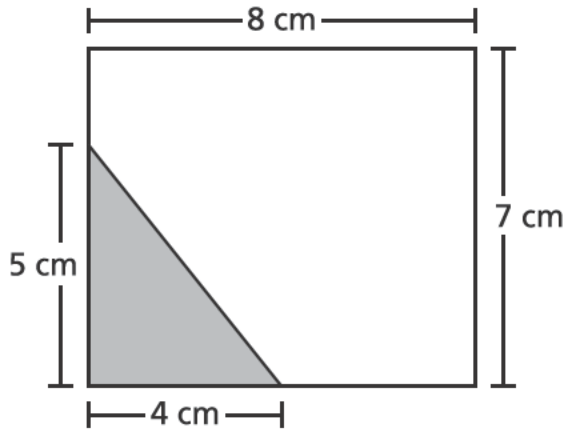
A 15

B 17

C 70

D 72

15 The figure below shows a shaded triangle within a rectangle.



What is the area, in square centimeters, of the part of the rectangle that is **not** shaded?

A 36

B 46

C 56

D 66

17 Lukas recorded the elevations, in feet, of four activities while on vacation. The table below shows the elevation of each activity, relative to sea level.

ACTIVITY ELEVATION

Activity	Elevation
Biking	83 ft
Diving	−122 ft
Hiking	456 ft
Swimming	−17 ft

Which activity has an elevation closest to sea level?

A biking

B diving

C hiking

D swimming

18 An expression is shown below.

$$5z + (9 \div 3)$$

What is the coefficient of the variable in this expression?

A 5

B z

C 9

D 3

21 A quadrilateral is drawn on a coordinate plane with the points A$(-4,8)$, B$(6,8)$, C$(6,4)$, and D$(-4,4)$. What is the length, in units, of side AB ?

A 2

B 6

C 10

D 16

GO ON

22 What is the value of the expression $5b + c^3$ when $b = 7$ and $c = 4$?

A 24

B 47

C 76

D 99

24 Which expression is equivalent to $8(2a + 3b) - 2b$?

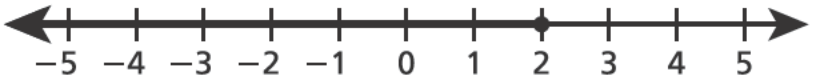
A $16a + b$

B $16a + 8b$

C $16a + 22b$

D $16a + 24b$

30 Which inequality, in terms of x, is graphed on the number line shown below?



A $x > 2$

B $x < 2$

C $x \geq 2$

D $x \leq 2$

STOP

Grade 6
2023
Mathematics Test
Session 1
May 2–4, 2023

Name: _____

New York State Testing Program

2023 Mathematics Test Session 2

Grade 6

May 2–4, 2023

RELEASED QUESTIONS

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, a protractor, and a calculator) 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 The number 60 is 75% of what number?

A 45

B 80

C 120

D 125

32 The table below shows the ratio of the number of teachers to the number of students at a school. The ratio of teachers to students is constant. Three numbers are missing from the table.

TEACHERS AND STUDENTS

Number of Teachers	2	?	8	12	?
Number of Students	5	15	?	30	75

Which table shows the correct missing numbers in the table above?

A

TEACHERS AND STUDENTS

Number of Teachers	2	6	8	12	37
Number of Students	5	15	16	30	75

B

TEACHERS AND STUDENTS

Number of Teachers	2	6	8	12	30
Number of Students	5	15	20	30	75

C

TEACHERS AND STUDENTS

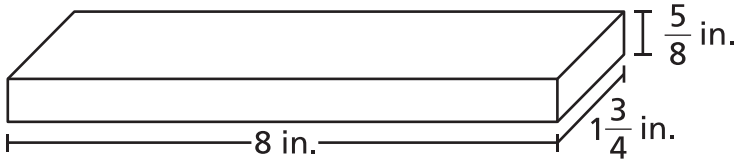
Number of Teachers	2	12	8	12	72
Number of Students	5	15	11	30	75

D

TEACHERS AND STUDENTS

Number of Teachers	2	6	8	12	32
Number of Students	5	15	20	30	75

33 A diagram of a right rectangular prism is shown below.



What is the volume, in cubic inches, of the right rectangular prism?

A $6\frac{3}{4}$

B $8\frac{3}{4}$

C $10\frac{3}{8}$

D $14\frac{5}{8}$

34 The ratio of number of yards to number of miles is 3,520 : 2. How many yards are in 5 miles?

A 1,760

B 5,280

C 7,040

D 8,800

35 Which expression is equivalent to $4(3m + 1)$?

A $7m + 1$

B $7m + 5$

C $12m + 1$

D $12m + 4$

36 Mark ran 8 miles in 60 minutes. If Mark continues to run at that same rate, how many minutes will it take him to run 12 miles?

A 48

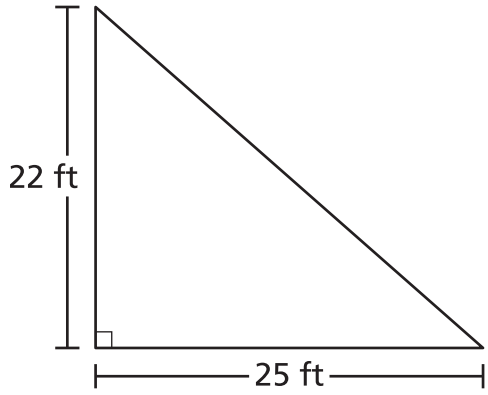
B 72

C 90

D 96

37 **This question is worth 1 credit.**

A right triangle is shown below.



What is the area, in square feet, of the right triangle?

Answer _____ square feet

38 **This question is worth 1 credit.**

The lowest recorded temperatures for each of two states are listed below.

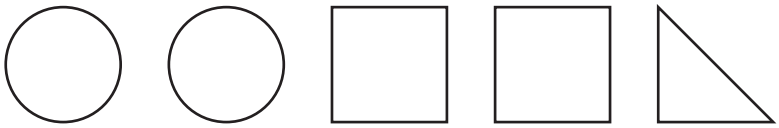
$-27°$F and $-35°$F

Write a statement using $<$, $>$, $\leq$, or $\geq$ to compare the recorded temperatures of the two states.

Answer _____

39 **This question is worth 1 credit.**

A set of shapes is shown below.



What is the ratio of the number of circles to the total number of shapes?

Answer _____

40 **This question is worth 2 credits.**

Lee makes a rectangular-shaped tile pattern by placing three tiles side by side, with no space between the tiles. The list below describes the shape of each tile and the order in which they are placed.

- The first tile is in the shape of a square with side lengths of x inches.
- The middle tile is shaped like a rectangle with a width of x inches and a length of $3x$ inches.
- The third tile is shaped like a square with side lengths of x inches.

The perimeter of the tile pattern is 60 inches. What is the value of x in the tile pattern?

Show your work.

Answer _____ inches

GO ON

41 **This question is worth 2 credits.**

The list below shows the cost of the same candle at two different stores.

- Store ABC sells 6 of these candles for $12.00.
- Store XYZ sells 8 of these candles for $14.00.

Which store sells the candle for a lower unit rate?

Explain how you determined your answer.

42 **This question is worth 2 credits.**

A box contains $8\frac{1}{4}$ cups of cereal. One serving of cereal is $\frac{3}{4}$ cup. How many servings of cereal are in the box?

Show your work.

Answer _____ servings

GO ON

43 **This question is worth 2 credits.**

What is the value of the expression $7 \times (5 - 3)^3 - 20 \div 4$?

Show your work.

Answer _____

44 **This question is worth 2 credits.**

The tables below show the ratios of distance to time traveled by Car A and Car B.

CAR A

Time (hours)	Distance (miles)
2	130
4	260
6	390

CAR B

Time (hours)	Distance (miles)
3	186
5	310
7	434

If both cars maintain their rates of speed, what is the difference between the distances, in miles, traveled by Car A and by Car B after 8 hours?

Show your work.

Answer _____ miles

GO ON

45 **This question is worth 2 credits.**

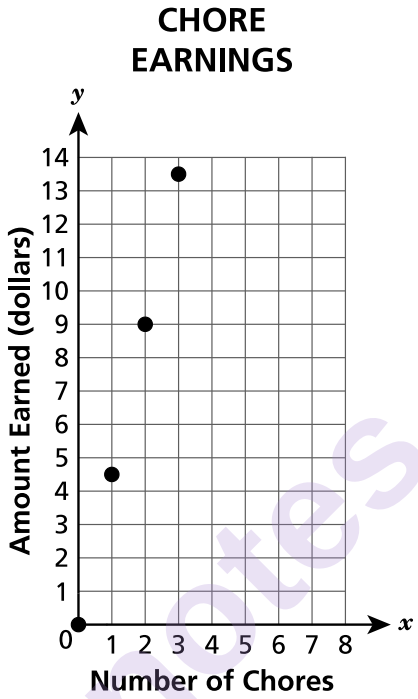
A shipping container in the shape of a right rectangular prism has a base with an area of 42 square feet. The height of the container is $5\frac{3}{4}$ feet. What is the volume, in cubic feet, of the shipping container?

Show your work.

Answer _____ cubic feet

46 **This question is worth 3 credits.**

Logan earns money for completing chores. The graph shown below represents the relationship between the number of chores, *x*, he completes, and the amount of money, *y*, he earns.



Based on the graph, explain the relationship between the number of chores Logan completes and the amount of money he earns. Be sure to identify the dependent and the independent variables in your answer.

Explain your answer.

Determine the total amount of money Logan will earn after completing 9 chores.

Answer $ _____

STOP

Grade 6
2023
Mathematics Test
Session 2
May 2–4, 2023

THE STATE EDUCATION DEPARTMENT

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

2023 Mathematics Tests Map to the Standards

Grade 6 Released Questions

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)
Session 1									
2	Multiple Choice	B	1	NGLS.Math.Content.NY-6.NS.6c	The Number System		0.6313		
3	Multiple Choice	C	1	NGLS.Math.Content.NY-6.EE.9	Expressions and Equations		0.4641		
7	Multiple Choice	C	1	NGLS.Math.Content.NY-6.G.4	Geometry		0.4141		
12	Multiple Choice	C	1	NGLS.Math.Content.NY-6.EE.2a	Expressions and Equations		0.4894		
13	Multiple Choice	B	1	NGLS.Math.Content.NY-6.NS.4	The Number System		0.4402		
14	Multiple Choice	C	1	NGLS.Math.Content.NY-6.EE.1	Expressions and Equations		0.6059		
15	Multiple Choice	B	1	NGLS.Math.Content.NY-6.G.1	Geometry		0.2707		
17	Multiple Choice	D	1	NGLS.Math.Content.NY-6.NS.7c	The Number System	NGLS.Math.Content.NY-6.NS.5	0.6673		
18	Multiple Choice	A	1	NGLS.Math.Content.NY-6.EE.2b	Expressions and Equations		0.5137		
21	Multiple Choice	C	1	NGLS.Math.Content.NY-6.G.3	Geometry		0.5655		
22	Multiple Choice	D	1	NGLS.Math.Content.NY-6.EE.2c	Expressions and Equations		0.6058		
24	Multiple Choice	C	1	NGLS.Math.Content.NY-6.EE.3	Expressions and Equations		0.4951		
30	Multiple Choice	D	1	NGLS.Math.Content.NY-6.EE.8	Expressions and Equations		0.4636		
Session 2									
31	Multiple Choice	B	1	NGLS.Math.Content.NY-6.RP.3c	Ratios and Proportional Relationships		0.6013		
32	Multiple Choice	B	1	NGLS.Math.Content.NY-6.RP.3a	Ratios and Proportional Relationships		0.5538		
33	Multiple Choice	B	1	NGLS.Math.Content.NY-6.G.2	Geometry		0.5475		
34	Multiple Choice	D	1	NGLS.Math.Content.NY-6.RP.3b	Ratios and Proportional Relationships	NGLS.Math.Content.NY-6.RP.3d	0.5502		
35	Multiple Choice	D	1	NGLS.Math.Content.NY-6.EE.3	Expressions and Equations		0.4899		
36	Multiple Choice	C	1	NGLS.Math.Content.NY-6.RP.3b	Ratios and Proportional Relationships		0.6124		
37	Constructed Response		1	NGLS.Math.Content.NY-6.G.1	Geometry			0.5400	0.5400
38	Constructed Response		1	NGLS.Math.Content.NY-6.NS.7b	The Number System			0.5679	0.5679
39	Constructed Response		1	NGLS.Math.Content.NY-6.RP.1	Ratios and Proportional Relationships			0.6482	0.6482
40	Constructed Response		2	NGLS.Math.Content.NY-6.EE.7	Expressions and Equations	NGLS.Math.Content.NY-6.EE.3		0.4131	0.2065
41	Constructed Response		2	NGLS.Math.Content.NY-6.RP.2	Ratios and Proportional Relationships			0.3635	0.1818
42	Constructed Response		2	NGLS.Math.Content.NY-6.NS.1	The Number System			0.3784	0.1892
43	Constructed Response		2	NGLS.Math.Content.NY-6.EE.1	Expressions and Equations			0.4028	0.2014
44	Constructed Response		2	NGLS.Math.Content.NY-6.RP.3b	Ratios and Proportional Relationships			0.3767	0.1884
45	Constructed Response		2	NGLS.Math.Content.NY-6.G.2	Geometry			0.3540	0.1770
46	Constructed Response		3	NGLS.Math.Content.NY-6.EE.9	Expressions and Equations	NGLS.Math.Content.NY-6.RP.3b		0.2549	0.0850

*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.