



New York State
EDUCATION DEPARTMENT
Knowledge > Skill > Opportunity

New York State Testing Program
Grade 7
Mathematics Test

Released Questions

2023

New York State administered the Mathematics Tests in May 2023 and is 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 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 7

May 2–4, 2023

RELEASED QUESTIONS

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Session

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, 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.

1 What is the value of the expression $\left(-\frac{1}{3}\right) \div \left(\frac{2}{5}\right)$?

A $-\frac{6}{5}$

B $-\frac{5}{6}$

C $\frac{5}{6}$

D $\frac{6}{5}$

2 Maria and two friends are at a movie theater. They have \$52.00 and spend \$34.50 of it on movie tickets. They also buy 3 drinks that each cost the same amount. After buying the movie tickets and drinks, they have \$4.00 remaining. How much did each drink cost?

A \$2.50

B \$3.83

C \$4.00

D \$4.50

GO ON

4

Megan reads the same number of pages in a book each day. The table below represents the total number of pages read at the end of the given number of days.

NUMBER OF PAGES READ

Number of Days	Total Number of Pages
2	32
4	64
5	80
7	112

How many pages does Megan read in 1 day?

- A 16
- B 18
- C 28
- D 32

5

Which expression is equivalent to the one shown below?

$$-1.5 + \frac{2}{5} + (-7) + 2.6$$

- A $(-5.5 + 2.6) + \frac{2}{5}$
- B $(-8.5 + 2.6) + \frac{2}{5}$
- C $\left(-\frac{1}{5} + \frac{2}{5}\right) + (-4.4)$
- D $\left(-\frac{1}{5} + \frac{2}{5}\right) + (-9.6)$

8

Joel has three buckets which contain different amounts of liquid. The amount of liquid in each bucket is listed below.

- $7\frac{1}{2}$ liters
- $5\frac{3}{4}$ liters
- $6\frac{3}{4}$ liters

Joel mixes all the liquid together. Then he pours all the liquid equally into 5 containers. How many liters of liquid does Joel pour into each container?

- A $2\frac{1}{2}$
- B 4
- C 6
- D $6\frac{2}{3}$

9

A student's science scores are shown below.

76, 82, 65, 82, 93, 63, 45, 82, 90, 74

What is the mode and how does it compare to the median?

- A The mode is 79 and it is lower than the median.
- B The mode is 79 and it is higher than the median.
- C The mode is 82 and it is lower than the median.
- D The mode is 82 and it is higher than the median.

The table below shows the amount of money, in dollars, that Kathy earns babysitting for a given number of hours worked.

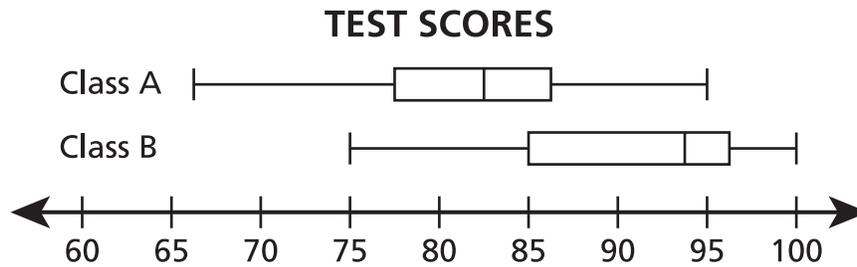
BABYSITTING EARNINGS

Number of Hours, h	Earnings, d (dollars)
4	\$50.00
5	\$62.50
6	\$75.00
9	\$112.50

Based on the table, which statement is true about the relationship between the number of hours, h , she works and the amount of money, d , she earns?

- A It is not proportional because when the value of h is 0, the value of d is 0.
- B It is proportional because the ratios between the values of d and h are the same for each pair.
- C It is not proportional because the difference between d and h is different for each pair of values.
- D It is proportional because the values of h increase by the same amount from one pair of values to the next.

The math test scores for Class A and Class B are represented in the box plots shown below.

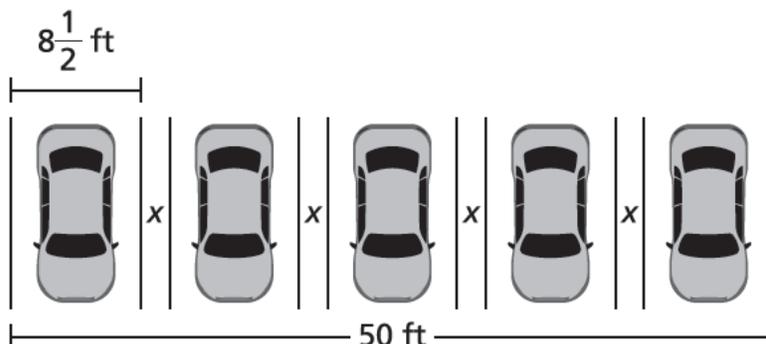


Which statement about the relationship between the scores of the two classes is true?

- A The median score for Class A is greater than the median score for Class B.
- B The range of the scores for Class A is less than the range of the scores for Class B.
- C The interquartile range for Class B is greater than the interquartile range for Class A.
- D The second quartile value for Class B is less than the second quartile value for Class A.

- 17 The design of an office parking lot is shown below. The distance between each parking space is x feet.

DIAGRAM OF PARKING LOT



What is the distance, x , between each parking space in the parking lot?

- A $\frac{17}{20}$ foot
- B $1\frac{1}{2}$ feet
- C $1\frac{7}{8}$ feet
- D $1\frac{7}{10}$ feet
- 18 A student has a bus pass with a balance of \$30.00. Each time the student rides the bus, the balance on the bus pass decreases by \$2.25. What is the greatest number of bus rides the student can take using the bus pass?
- A 10
- B 13
- C 14
- D 15

GO ON

21

A store sells blue hats and green hats. Each hat is priced at \$8.00. The expression $8b + 8g$ can be used to determine the total price when a customer buys any number of blue hats, b , and any number of green hats, g . Which equivalent expression could also be used to determine the total price, in dollars, of the hats?

- A $8bg$
- B $16bg$
- C $8(b + g)$
- D $16(b + g)$

GO ON

23

A store manager collects information about the number of people who visit his store each week. The information, collected over a 3-week period, is listed below.

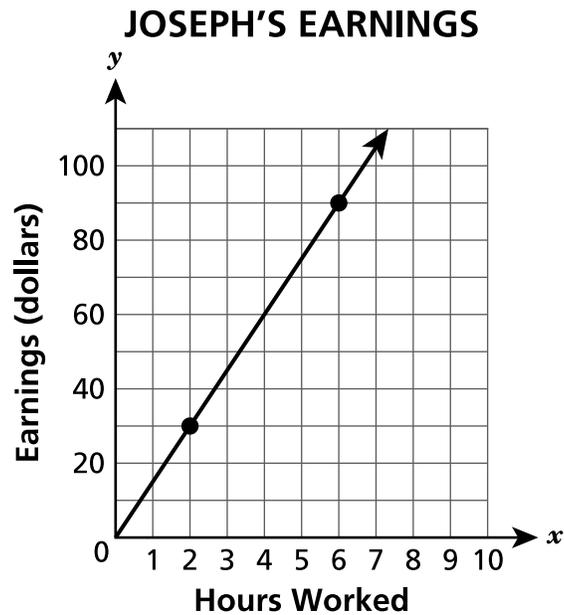
- The number of people that visited the store in week 1 was 3,200.
- The number of people that visited the store in week 2 was 10% more than week 1.
- The number of people that visited the store in week 3 was 15% more than week 2.

How many people visited the store in week 3 ?

- A 3,520
- B 3,680
- C 4,000
- D 4,048

25

Joseph has a part-time job. The graph below represents the amount Joseph earns, in dollars, for the number of hours he works.

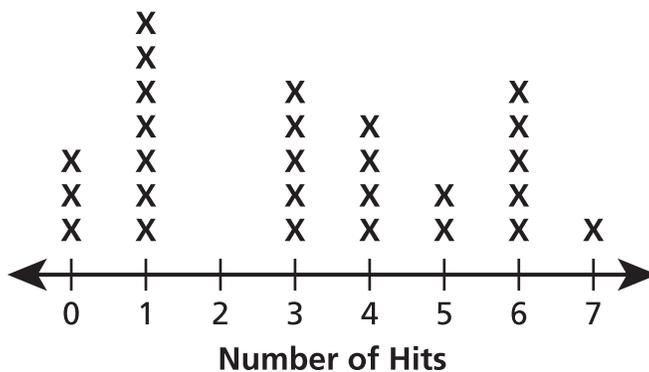


Based on the graph, which equation can be used to determine the earnings, in dollars, for every hour he works?

- A $y = 1.5x$
- B $y = 15x$
- C $x = 1.5y$
- D $x = 15y$

- 31 The line plot shown below represents the number of hits by some players at a baseball tournament.

HITS AT BASEBALL TOURNAMENT



How many players are represented by the data on the line plot?

- A 3
 - B 7
 - C 27
 - D 85
- 32 The bill for a dinner at a restaurant is \$58.20, before sales tax and tip. Sales tax is 5% of the dinner bill. Tip is 20% of the dinner bill. How much is the total bill including tax and tip?
- A \$83.20
 - B \$72.75
 - C \$62.27
 - D \$58.45

STOP

Grade 7
2023
Mathematics Test
Session 1
May 2–4, 2023

Name: _____



New York State Testing Program

2023 Mathematics Test Session 2

Grade 7

May 2–4, 2023

RELEASED QUESTIONS

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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.

33 A bicyclist travels $6\frac{1}{2}$ miles in $\frac{2}{3}$ hour. What is the average speed, in miles per hour, of the bicyclist?

A $6\frac{1}{2}$

B $6\frac{5}{6}$

C $7\frac{1}{6}$

D $9\frac{3}{4}$

34 At a deli, customers buying a sandwich can choose one type of bread, one type of meat, and one type of cheese. The options for each sandwich are listed below.

- bread: white or wheat
- meat: turkey or beef
- cheese: American, Swiss, or cheddar

Assuming each choice is equally likely, what is the probability a customer will choose a sandwich with white bread, turkey, and Swiss cheese?

A $\frac{1}{12}$

B $\frac{1}{7}$

C $\frac{1}{4}$

D $\frac{1}{3}$

GO ON

35 Frank is riding in a taxi to get to work. The cost of riding in a taxi includes a one-time fee of \$2.75, and \$2.60 per mile. If Frank rides in a taxi for 4 miles and pays a \$2.00 tip, how much money will he have left over if he pays with a \$20.00 bill?

- A \$4.85
- B \$6.85
- C \$7.35
- D \$7.60

36 The sum of two numbers is zero. If one of the numbers is 5, what is the other number?

- A -10
- B -5
- C 0
- D 5

37 Ms. Jacobs has \$15.00 to spend on coffee and donuts. She buys 1 coffee for \$2.59. The cost of each donut is \$1.09. Which inequality could be used to determine the greatest number of donuts, d , that Ms. Jacobs can buy?

- A $1.09d + 2.59 \leq 15$
- B $1.09d + 2.59 \geq 15$
- C $1.09 + 2.59d \leq 15$
- D $1.09 + 2.59d \geq 15$

38

Maggie owns a dog grooming business. The prices for two services are listed below.

- \$31.50 for a dog wash
- \$17.00 for a nail trim

A customer receives an 18% discount when paying for both a dog wash and a nail trim. What is the total price the customer will pay for a dog wash and a nail trim with the discount?

- A \$18.00
- B \$39.77
- C \$42.83
- D \$48.50

GO ON

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

The table below shows a proportional relationship between the cups of flour, x , and the number of cookies, y , for a given recipe.

**AMOUNT OF FLOUR
FOR COOKIES**

Cups of Flour (x)	Number of Cookies (y)
$1\frac{1}{2}$	24
3	48
$4\frac{1}{2}$	72
6	96
$7\frac{1}{2}$	120

Based on this relationship, how many cookies can be made per cup of flour?

Answer _____ cookies

GO ON

40

This question is worth 1 credit.

Kasey and Andrew each went for a walk, once a day, for 4 days.

- Kasey walked $\frac{3}{4}$ mile each day.
- Andrew walked $\frac{3}{5}$ mile each day.

At the end of 4 days, how much farther, in miles, had Kasey walked than Andrew?

Answer _____ miles

GO ON

41

This question is worth 1 credit.

Write the expression $\frac{1}{2}(18y - 2y + 10)$ as the sum of two unlike terms.

Answer _____

GO ON

42

This question is worth 2 credits.

A student programs a robot to travel at a constant speed across the classroom floor. The table below represents the relationship between the distance, in feet, the robot travels over a period of time, in seconds.

DISTANCE ROBOT TRAVELED

Time, t (seconds)	Distance, d (feet)
2	1
4	2
10	5
16	8

Write an equation to represent the distance, d , in feet, the robot travels in t seconds. Using the equation, how many seconds will it take for the robot to travel 11 feet?

Show your work.

Answer _____ seconds

GO ON

43

This question is worth 2 credits.

Diane is planning a party at a trampoline park. It will cost \$55.00 to rent the park, plus an additional \$8.00 per guest. She wants to spend less than \$100.00 on the party. Write and solve an inequality to determine the maximum number of guests, g , that can be invited when spending less than a total of \$100.00.

Show your work.

Answer _____ guests

GO ON

44

This question is worth 2 credits.

A student tosses a fair coin with heads (H) on one side and tails (T) on the other, and rolls a fair number cube with faces numbered 1 through 6. How many different outcomes are possible? Be sure to provide the sample space for all possible combinations to support your answer.

Explain your answer.

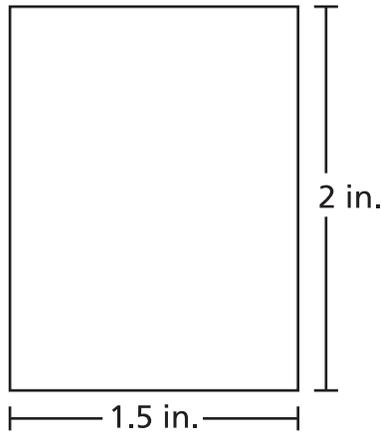
GO ON

45

This question is worth 2 credits.

A scale drawing of the floor of a rectangular-shaped classroom is shown in the diagram below. The drawing has a scale of 1 inch to 14 feet.

**DIAGRAM OF
CLASSROOM FLOOR**



What is the area, in square feet, of the actual classroom?

Show your work.

Answer _____ square feet

GO ON

46

This question is worth 2 credits.

A scuba diver dives 24 feet below the water's surface. The diver then rises 10 feet, stops, and then dives downward another 18 feet. How far, in feet, does the diver need to rise upward to reach the water's surface?

Explain how you determined your answer.

GO ON

47

This question is worth 2 credits.

A family of 2 adults and 2 children went to a fair. The costs of admission and rides are listed below.

- \$11.00 for admission for each adult
- \$5.00 for admission for each child
- \$1.25 per ride

The family spent a total of \$52.00 on admission and rides. How many rides did the family pay for?

Show your work.

Answer _____ rides

GO ON

48

This question is worth 3 credits.

Airline A and Airline B offer travel discounts to the same destination. The original ticket prices and discounts are described below.

- Airline A: a discount of 25% off the original ticket price of \$150
- Airline B: a discount of $\frac{1}{3}$ off the original ticket price of \$180

Which airline offers the **least** expensive ticket? Be sure to include the discounted ticket price for each airline in your answer.

Explain how you determined your answer.

STOP

Grade 7
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 7 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									
1	Multiple Choice	B	1	NGLS.Math.Content.NY-7.NS.2c	The Number System		0.8487		
2	Multiple Choice	D	1	NGLS.Math.Content.NY-7.EE.3	Expressions and Equations		0.7725		
4	Multiple Choice	A	1	NGLS.Math.Content.NY-7.RP.2b	Ratios and Proportional Relationships		0.8573		
5	Multiple Choice	B	1	NGLS.Math.Content.NY-7.NS.1d	The Number System		0.6314		
8	Multiple Choice	B	1	NGLS.Math.Content.NY-7.NS.3	The Number System		0.6152		
9	Multiple Choice	D	1	NGLS.Math.Content.NY-6.SP.5c	Statistics and Probability		0.4920		
13	Multiple Choice	B	1	NGLS.Math.Content.NY-7.RP.2a	Ratios and Proportional Relationships		0.4687		
16	Multiple Choice	C	1	NGLS.Math.Content.NY-7.SP.4	Statistics and Probability		0.4835		
17	Multiple Choice	C	1	NGLS.Math.Content.NY-7.EE.4a	Expressions and Equations		0.4064		
18	Multiple Choice	B	1	NGLS.Math.Content.NY-7.NS.3	The Number System		0.8399		
21	Multiple Choice	C	1	NGLS.Math.Content.NY-7.EE.2	Expressions and Equations		0.6178		
23	Multiple Choice	D	1	NGLS.Math.Content.NY-7.RP.3	Ratios and Proportional Relationships		0.6179		
25	Multiple Choice	B	1	NGLS.Math.Content.NY-7.RP.2c	Ratios and Proportional Relationships		0.4988		
31	Multiple Choice	C	1	NGLS.Math.Content.NY-6.SP.5a	Statistics and Probability		0.7564		
32	Multiple Choice	B	1	NGLS.Math.Content.NY-7.RP.3	Ratios and Proportional Relationships		0.6396		
Session 2									
33	Multiple Choice	D	1	NGLS.Math.Content.NY-7.RP.1	Ratios and Proportional Relationships		0.5740		
34	Multiple Choice	A	1	NGLS.Math.Content.NY-7.SP.8a	Statistics and Probability		0.4131		
35	Multiple Choice	A	1	NGLS.Math.Content.NY-7.EE.3	Expressions and Equations		0.6779		
36	Multiple Choice	B	1	NGLS.Math.Content.NY-7.NS.1b	The Number System		0.8058		
37	Multiple Choice	A	1	NGLS.Math.Content.NY-7.EE.4b	Expressions and Equations		0.5916		
38	Multiple Choice	B	1	NGLS.Math.Content.NY-7.RP.3	Ratios and Proportional Relationships		0.6899		
39	Constructed Response		1	NGLS.Math.Content.NY-7.RP.2b	Ratios and Proportional Relationships			0.6587	0.6587
40	Constructed Response		1	NGLS.Math.Content.NY-7.NS.3	The Number System	NGLS.Math.Content.NY-7.EE.3		0.3899	0.3899
41	Constructed Response		1	NGLS.Math.Content.NY-7.EE.1	Expressions and Equations			0.3393	0.3393
42	Constructed Response		2	NGLS.Math.Content.NY-7.RP.2c	Ratios and Proportional Relationships	NGLS.Math.Content.NY-7.RP.3		0.4112	0.2056
43	Constructed Response		2	NGLS.Math.Content.NY-7.EE.4b	Expressions and Equations			0.4688	0.2344
44	Constructed Response		2	NGLS.Math.Content.NY-7.SP.8b	Statistics and Probability			0.3824	0.1912
45	Constructed Response		2	NGLS.Math.Content.NY-7.G.1	Geometry			0.4432	0.2216
46	Constructed Response		2	NGLS.Math.Content.NY-7.NS.1b	The Number System	NGLS.Math.Content.NY-7.NS.1d		0.6757	0.3379
47	Constructed Response		2	NGLS.Math.Content.NY-7.EE.3	Expressions and Equations			0.6414	0.3207
48	Constructed Response		3	NGLS.Math.Content.NY-7.RP.3	Ratios and Proportional Relationships	NGLS.Math.Content.NY-7.NS.3		0.4282	0.1427

*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.