



New York State
EDUCATION DEPARTMENT
Knowledge > Skill > Opportunity

**New York State Testing Program
Grade 4
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

2022 Mathematics Test Session 1

Grade 4

April 26–28, 2022

RELEASED QUESTIONS

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Session 1

Session 1



TIPS FOR TAKING THE TEST

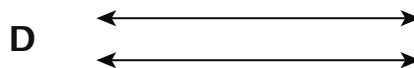
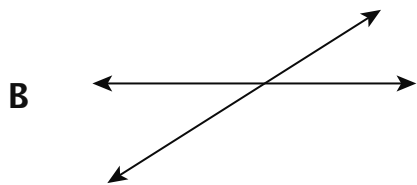
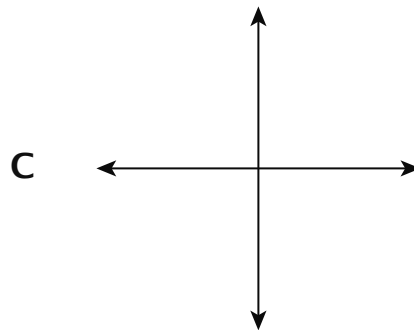
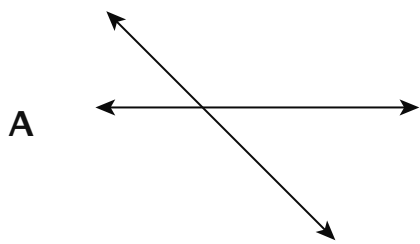
Here are some suggestions to help you do your best:

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

1 Julia moves the arm of a spinner one degree at a time 45 times. How many total degrees does Julia move the arm of the spinner?

- A 1
- B 45
- C 90
- D 360

2 Which pair of lines appears to be perpendicular?



8 The ground in a rectangular section of a park has a length of 24 feet and a width of 12 feet. What is the area, in square feet, of the ground in that section of the park?

- A 36
- B 72
- C 144
- D 288

9 How many times greater is the value represented by the digit 6 in the number 6,419 than the value represented by the digit 6 in the number 84,362?

- A 10
- B 100
- C 1,000
- D 10,000

13 Which equation represents the statement below?

forty-eight is six times as many as eight

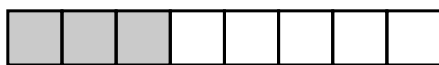
A $48 - 6 = 8$

B $48 + 6 = 8$

C $48 = 6 \times 8$

D $48 = 6 + 8$

14 The models below are each shaded to represent a different fraction.



What is the sum of the fractions represented by the shaded parts of the models?

A $\frac{1}{8}$

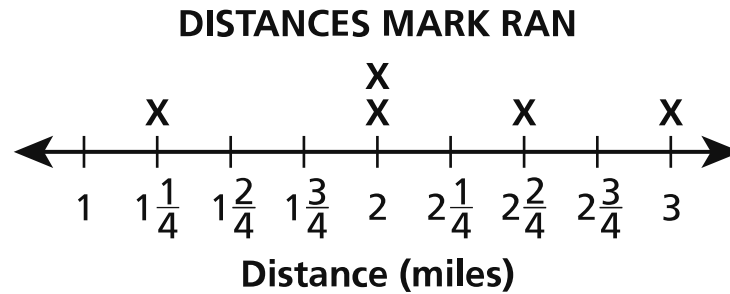
B $\frac{3}{8}$

C $\frac{4}{8}$

D $\frac{7}{8}$

16

The line plot below shows the distances Mark ran on each of five days last week.



What is the total number of miles Mark ran last week?

- A $8\frac{1}{4}$
- B $8\frac{3}{4}$
- C $10\frac{2}{4}$
- D $10\frac{3}{4}$

17

A number rounded to the nearest hundred is 3,700. Which number could **not** be the number before it was rounded?

- A 3,614
- B 3,650
- C 3,720
- D 3,749

GO ON

21 Which list shows only fractions less than $\frac{1}{2}$?

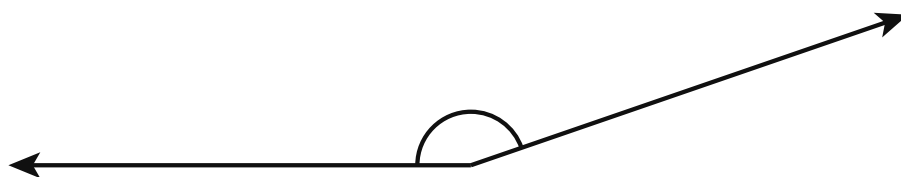
A $\frac{1}{3}, \frac{1}{5}, \frac{1}{8}$

B $\frac{2}{3}, \frac{2}{4}, \frac{2}{5}$

C $\frac{1}{4}, \frac{5}{8}, \frac{6}{12}$

D $\frac{3}{4}, \frac{5}{6}, \frac{7}{10}$

22 What is the measure of the angle shown below?



A 19°

B 24°

C 156°

D 161°

23 Brownies are sold at a bake sale.

- 3 pans of brownies are for sale
- each pan has 5 rows with 5 brownies in each row
- each brownie is sold for \$2

How much money is made when all of the brownies are sold?

- A** \$25
- B** \$50
- C** \$75
- D** \$150

24 What is the measure, in degrees, of an angle that represents $\frac{1}{4}$ of a complete circle?

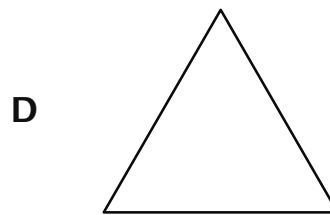
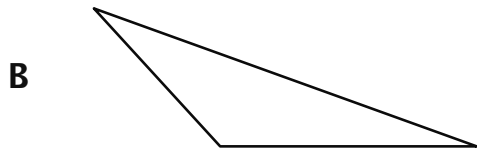
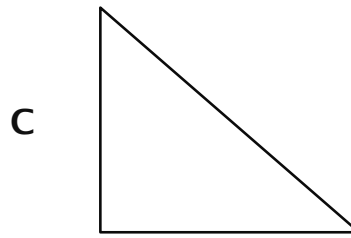
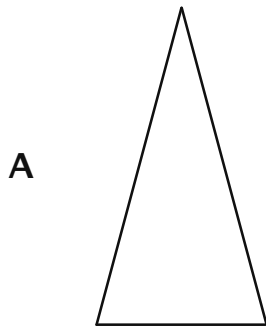
- A** 25
- B** 45
- C** 90
- D** 180

GO ON

27 What is the value of $7,839 \times 9$?

- A 70,471
- B 70,551
- C 71,471
- D 71,551

28 Which figure appears to be a right triangle?



Grade 4
2022
Mathematics Test
Session 1
April 26–28, 2022

Name: _____



New York State Testing Program

2022 Mathematics Test Session 2

Grade 4

April 26–28, 2022

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 and a protractor) to use during the test. It is up to you to decide when each tool will be helpful. You should use mathematics tools whenever you think they will help you to answer the question.
- Be sure to show your work when asked.

- 31** Mr. Jonus ordered a pizza to take home. His children ate $\frac{4}{8}$ of the pizza and Mr. Jonus ate $\frac{2}{8}$ of the pizza. The remaining pizza was saved for later. Which equation could be used to represent the whole pizza?

A $\frac{2}{8} + \frac{3}{8} + \frac{4}{8} = 1$

B $\frac{1}{8} + \frac{2}{8} + \frac{4}{8} = 1$

C $\frac{2}{8} + \frac{2}{8} + \frac{4}{8} = 1$

D $\frac{2}{8} + \frac{4}{8} + \frac{4}{8} = 1$

- 32** Matt has 4 pens. Sue has 4 times as many pens as Matt. Chris has 2 times as many pens as Sue. Which equation can be used to determine the number of pens Chris has?

A $4 + 4 + 2 = \underline{\quad ? \quad}$

B $4 + 4 \times 2 = \underline{\quad ? \quad}$

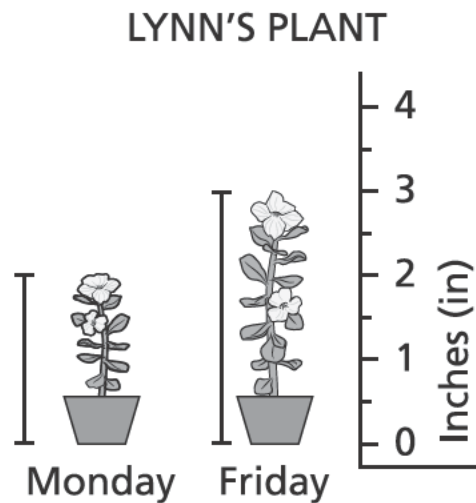
C $4 \times 4 \times 2 = \underline{\quad ? \quad}$

D $4 \times 4 + 2 = \underline{\quad ? \quad}$

GO ON

33

Lynn measured the height of a plant on Monday and again on Friday. The diagram below shows the plant's height, in inches, on each day.



How much did the plant grow, in inches, between Monday and Friday?

- A 1
- B 2
- C 3
- D 5

34

Sam has 12 baseball cards. Aly has 4 times as many baseball cards as Sam. Which equation can be used to find the total number of baseball cards Aly has?

- A $12 \div 4 = 3$
- B $12 - 4 = 8$
- C $12 + 4 = 16$
- D $12 \times 4 = 48$

GO ON

- 35** What is the value of the expression shown below?

$$9\frac{4}{10} - 2\frac{8}{10}$$

- A** $6\frac{4}{10}$
- B** $6\frac{6}{10}$
- C** $7\frac{4}{10}$
- D** $7\frac{6}{10}$

- 36** Cam has 35 tickets to use at an amusement park. He wants to use as many of the tickets on rides as he can. Each ride requires 4 tickets. How many tickets will Cam have left over after going on as many rides as he can?

- A** 3
- B** 4
- C** 8
- D** 9

GO ON

37 The students in Ms. Lee's class collected 268 books to donate to a library. The books were packed into 4 large boxes. The same number of books were packed in each box. How many books were packed in each box?

- A 52
- B 67
- C 842
- D 1,072

38 There are 24 students in Ms. Smyth's fourth-grade class. There are 6 times as many fourth-grade students in the school as in Ms. Smyth's class. Which equation can be used to find the total number of fourth-grade students in the school?

- A $24 \times \underline{\quad ? \quad} = 6$
- B $24 \div \underline{\quad ? \quad} = 6$
- C $24 \times 6 = \underline{\quad ? \quad}$
- D $24 + 6 = \underline{\quad ? \quad}$

39 The relationship between tickets earned and points earned in a game is described below.

- 1 ticket earned for every 9 points earned
- 2 tickets earned for every 18 points earned
- 3 tickets earned for every 27 points earned

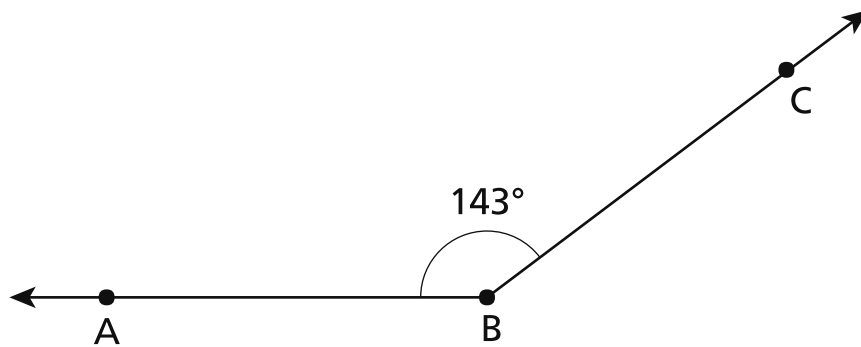
If the pattern continues, how many tickets are earned when 54 points are earned?

Show your work.

Answer _____ tickets

GO ON

40 The diagram below shows angle ABC.



Ray BD is added to the diagram to create straight angle ABD and new angle CBD. What is the measure, in degrees, of angle CBD?

Show your work.

Answer _____ degrees

GO ON

- 41 Dotted lines were added to the two figures shown below to represent lines of symmetry.

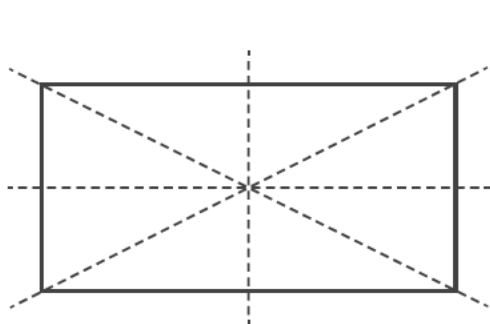


Figure A

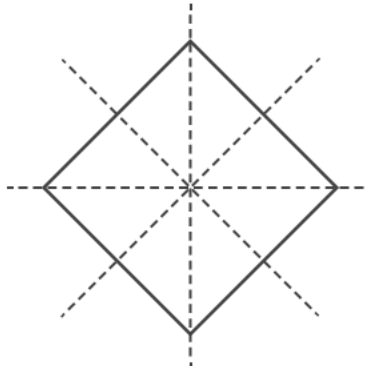


Figure B

Which figure shows only correct lines of symmetry?

Explain how you know your answer is correct.

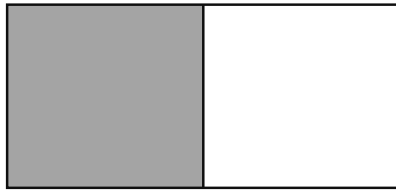
42

The population of City A is eighty-four thousand two hundred six. The population of City B is represented by the expression $80,000 + 4,000 + 200 + 10 + 6$. Write a number sentence using $>$, $<$, or $=$ to compare the populations of City A and City B.

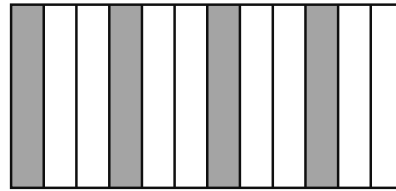
Explain how you know your answer is correct.

43

The models shown below are the same size and divided into equal parts. The shaded parts in each model represent a fraction of a whole.



Model A



Model B

How many more parts in Model B need to be shaded to make the fraction represented by Model B equivalent to the fraction represented by Model A? Be sure to include the new fraction represented by Model B in your answer.

Explain how you know your answer is correct.

GO ON

44

A section of a library has 36 bookshelves. Each bookshelf holds exactly 48 books of similar size. What is the total number of books that all of the bookshelves will hold?

Show your work.

Answer _____ books

GO ON

45

A student is using wooden blocks to build two towers of different heights.

All of the blocks are the same size and have a height of $\frac{3}{4}$ inch. The short tower is 5 blocks high and the tall tower is 9 blocks high. What is the difference in height, in inches, between the short tower and the tall tower?

Show your work.

Answer _____ inches

STOP

Grade 4
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 4 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)
Session 1								
1	Multiple Choice	B	1	CCSS.Math.Content.4.MD.C.5b	Measurement and Data	0.77		
2	Multiple Choice	C	1	CCSS.Math.Content.4.G.A.1	Geometry	0.73		
8	Multiple Choice	D	1	CCSS.Math.Content.4.MD.A.3	Measurement and Data	0.54		
9	Multiple Choice	B	1	CCSS.Math.Content.4.NBT.A.1	Number and Operations in Base Ten	0.41		
13	Multiple Choice	C	1	CCSS.Math.Content.4.OA.A.1	Operations and Algebraic Thinking	0.9		
14	Multiple Choice	D	1	CCSS.Math.Content.4.NF.B.3a	Number and Operations - Fractions	0.76		
16	Multiple Choice	D	1	CCSS.Math.Content.4.MD.B.4	Measurement and Data	0.47		
17	Multiple Choice	A	1	CCSS.Math.Content.4.NBT.A.3	Number and Operations in Base Ten	0.62		
21	Multiple Choice	A	1	CCSS.Math.Content.4.NF.A.2	Number and Operations - Fractions	0.74		
22	Multiple Choice	D	1	CCSS.Math.Content.4.MD.C.6	Measurement and Data	0.69		
23	Multiple Choice	D	1	CCSS.Math.Content.4.OA.A.3	Operations and Algebraic Thinking	0.44		
24	Multiple Choice	C	1	CCSS.Math.Content.4.MD.C.5a	Measurement and Data	0.55		
27	Multiple Choice	B	1	CCSS.Math.Content.4.NBT.B.5	Number and Operations in Base Ten	0.61		
28	Multiple Choice	C	1	CCSS.Math.Content.4.G.A.2	Geometry	0.71		

Session 2

31	Multiple Choice	C	1	CCSS.Math.Content.4.NF.B.3d	Number and Operations - Fractions	0.74		
32	Multiple Choice	C	1	CCSS.Math.Content.4.OA.A.2	Operations and Algebraic Thinking	0.82		
33	Multiple Choice	A	1	CCSS.Math.Content.3.MD.B.4	Measurement and Data	0.67		
34	Multiple Choice	D	1	CCSS.Math.Content.4.OA.A.1	Operations and Algebraic Thinking	0.88		
35	Multiple Choice	B	1	CCSS.Math.Content.4.NF.B.3c	Number and Operations - Fractions	0.44		
36	Multiple Choice	A	1	CCSS.Math.Content.4.OA.A.3	Operations and Algebraic Thinking	0.54		
37	Multiple Choice	B	1	CCSS.Math.Content.4.NBT.B.6	Number and Operations in Base Ten	0.68		
38	Multiple Choice	C	1	CCSS.Math.Content.4.OA.A.2	Operations and Algebraic Thinking	0.81		
39	Constructed Response		2	CCSS.Math.Content.4.OA.C.5	Operations and Algebraic Thinking		1.38	0.69
40	Constructed Response		2	CCSS.Math.Content.4.MD.C.7	Measurement and Data		0.5	0.25
41	Constructed Response		2	CCSS.Math.Content.4.G.A.3	Geometry		0.72	0.36
42	Constructed Response		2	CCSS.Math.Content.4.NBT.A.2	Number and Operations in Base Ten		1.01	0.5
43	Constructed Response		2	CCSS.Math.Content.4.NF.A.2	Number and Operations - Fractions		0.8	0.4
44	Constructed Response		2	CCSS.Math.Content.4.NBT.B.5	Number and Operations in Base Ten		1.09	0.55
45	Constructed Response		3	CCSS.Math.Content.4.NF.B.4c	Number and Operations - Fractions		0.98	0.33

*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.