New York State
EDUCATION DEPARTMENT
Knowledge › Skill › Opportunity

New York State Testing Program
Grade 7
Mathematics Test

Released Questions

2021

New York State administered the Mathematics Tests in May 2021 and is now making the questions from Session 1 of these tests available for review and use. Only Session 1 was required in 2021.

New York State Testing Program
Grades 3–8 Mathematics

Released Questions from 2021 Tests

Background

In 2013, New York State (NYS) 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 (NYSED) 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 2021 NYS Grades 3–8 English Language Arts and Mathematics test materials for review, discussion, and use.

In February 2021, with the ongoing COVID-19 pandemic still forcing restrictions on all educational and learning activities statewide, NYSED submitted two federal waiver requests related to state assessment and accountability requirements. The waiver requests addressed the unique circumstances caused by the pandemic that have resulted in many students receiving some or all of their instruction remotely.

Later that month, the United States Department of Education (USDE) informed states that it would not grant a blanket waiver for state assessments. However, the USDE agreed to uncouple state assessments from the Every Student Succeeds Act (ESSA) accountability requirements so that test results will be used solely as a measure of student learning. Additionally, it was decided that NYSED would administer only Session 1 of the Grades 3–8 ELA and Mathematics Tests for the Spring 2021 administration and that the tests would include previously administered questions.

The decision to use previously administered test questions in this extraordinary year was based on guidance from nationally recognized experts in the assessment field and was recommended in a publication from the Council of Chief State School Officers to state education departments. Reusing test questions provided the benefit of having established scale scores and stable item parameters. Using previously administered test questions also ensured that it will be possible to develop new test forms for 2022 and beyond. Although it was not the driver of the decision, the reuse of previously administered test questions provided an opportunity for cost savings during these unique circumstances where the instructional models used by schools varied throughout the State.

For 2021, the entire Session 1 booklet is being released as this is all that students were required to take. Additionally, NYSED is providing a map that details what learning standards 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 NYSED'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.

New York State P–12 Learning Standards Alignment

The alignment to the New York State P–12 Learning Standards for Mathematics is intended to identify the primary analytic skills necessary to successfully answer each question. 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

Mathematics Test
Session 1
Grade 7

v202

Released Questions

Developed and published under contract with the New York State Education Department by Questar Assessment Inc., 5550 Upper 147th Street West, Minneapolis, MN 55124.

Grade 7 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

FORMULAS

Triangle	$A = \frac{1}{2}bh$
Parallelogram	$A = bh$
Circle	$A = \pi r^2$
Circle	$C = \pi d$ or $C = 2\pi r$
General Prisms	$V = Bh$

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 Clara goes miniature golfing. She pays $\$7.50$ for an admission ticket and $\$6.25$ for each round she golfs. The total amount Clara pays for admission and the number of rounds she golfs is $\$26.25$. Which equation can be used to determine the number of rounds, x, that Clara golfs?

A $6.25x + 7.50 = 26.25$

B $6.25x - 7.50 = 26.25$

C $7.50x + 6.25 = 26.25$

D $7.50x - 6.25 = 26.25$

2 What is the exact decimal equivalent of $\frac{7}{12}$?

A 0.583

B $0.58\overline{3}$

C 1.714

D $1.71\overline{4}$

3 Joseph's lunch at a restaurant costs $\$13.00$, without tax. He leaves the waiter a tip of 17% of the cost of the lunch, without tax. What is the total cost of the lunch, including the tip, without tax?

A $\$2.21$

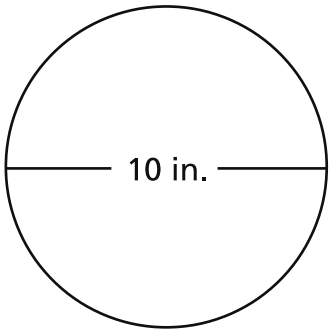
B $\$10.79$

C $\$13.17$

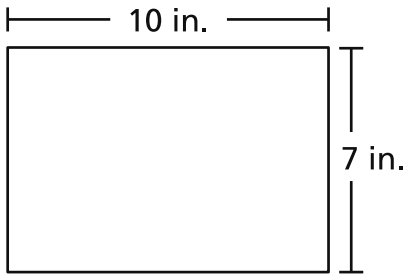
D $\$15.21$

4 Jordan is baking brownies and will choose to use either a round or a rectangular pan. The dimensions of the bottom of each pan are shown below.

BOTTOM OF ROUND PAN



BOTTOM OF RECTANGULAR PAN



Which statement correctly describes how the area of the bottom of the round pan compares to the area of the bottom of the rectangular pan?

A The area of the bottom of the round pan is greater than the area of the bottom of the rectangular pan by about 8.5 square inches.

B The area of the bottom of the round pan is greater than the area of the bottom of the rectangular pan by about 244.2 square inches.

C The area of the bottom of the round pan is less than the area of the bottom of the rectangular pan by about 7.2 square inches.

D The area of the bottom of the round pan is less than the area of the bottom of the rectangular pan by about 38.6 square inches.

5 On average, Shawnte drinks $\frac{1}{2}$ of a 6-ounce glass of water in $\frac{2}{3}$ hour. How much water does she drink in an hour?

A 0.75 ounce

B 2 ounces

C 4.5 ounces

D 9 ounces

6 What is the value of the expression shown below?

$$\frac{-(-4)(-6) - \frac{3}{5}(10 + 15)}{\frac{1}{3}}$$

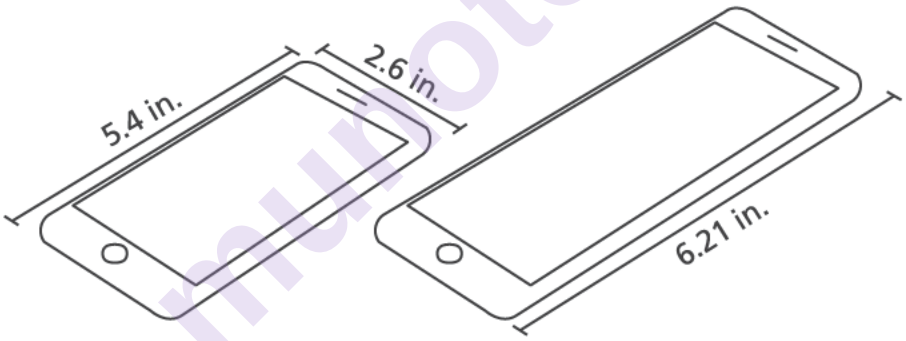
A -117

B -13

C 3

D 27

7 The diagram shows the length and width of a cell phone, and the length of a larger version of the same brand of cell phone.



The lengths and widths of the two cell phones are proportional. What is the width, in inches, of the larger version of the cell phone?

A 1.15

B 2.26

C 2.99

D 3.41

8 From $12{:}00$ midnight to $6{:}00$ a.m., the temperature decreased by 12°C. If the original temperature was 12°C, which expression can be used to represent this situation?

A $12 - 12$

B $12 + 12$

C $12 - (-12)$

D $-12 + (-12)$

9 Jordan prepares 200 name tags to use at a meeting. The number for each color of name tag is described below.

- 35% of the name tags are blue
- $\frac{3}{8}$ of the name tags are yellow
- all of the remaining name tags are red

How many of Jordan's name tags are red?

A 55

B 90

C 110

D 145

10 The ratio of boys to girls in Mr. Johnson's after-school club is the same as the ratio of boys to girls in Ms. Greene's after-school club. There are 4 boys and 12 girls in Mr. Johnson's club. There are 6 boys in Ms. Greene's club. How many girls are in Ms. Greene's club?

A 2

B 12

C 14

D 18

11 The regular price of an item at a store is p dollars. The item is on sale for 20% off the regular price. Some of the expressions shown below represent the sale price, in dollars, of the item.

Expression A: $0.2p$

Expression B: $0.8p$

Expression C: $1 - 0.2p$

Expression D: $p - 0.2p$

Expression E: $p - 0.8p$

Which two expressions each represent the sale price of the item?

A Expression A and Expression E

B Expression B and Expression C

C Expression B and Expression D

D Expression C and Expression D

12 Last week, the price of apples at a grocery store was $\$1.60$ per pound. This week, apples at the same grocery store are on sale at a 10% discount. What is the total price of $4\frac{1}{2}$ pounds of apples this week at the grocery store?

A $\$4.77$

B $\$6.48$

C $\$6.75$

D $\$6.93$

13 An object travels along a horizontal straight path at a constant rate. The object travels $\frac{1}{20}$ of the length of the path in $\frac{3}{4}$ second. At that rate, how many seconds does it take the object to travel the entire length of the path?

A 15

B $15\frac{3}{4}$

C 20

D $20\frac{3}{4}$

14 A furniture store has a sale during which the sale price of a sofa is $\frac{1}{3}$ off its original price. The original price of the sofa is $\$1{,}029.00$. A customer can get an additional 5% discount off the sale price for paying with cash. At checkout, a 6.5% sales tax on the final price is added to the cost of the sofa. What is the total cost of the sofa, including sales tax, for a customer paying with cash?

A $\$343.00$

B $\$651.70$

C $\$686.00$

D $\$694.06$

15 Which table shows a proportional relationship between x and y?

A

x	y
3	4
6	10
9	16
12	22
15	28

C

x	y
4	2
8	4
12	8
16	14
20	20

B

x	y
12	6
14	12
16	18
18	24
20	30

D

x	y
5	1
10	2
15	3
20	4
25	5

16 Which expression is equivalent to $7a - 8 - 12a + 4$?

A $-9a$

B $31a$

C $-5a - 4$

D $19a + 12$

17 A box contains paper clips of three different sizes. The numbers of each size of paper clip are listed below.

- 100 small paper clips
- 250 medium paper clips
- 150 large paper clips

One paper clip is randomly selected from the box. What is the probability that the paper clip selected is either small or medium?

A $\frac{1}{3}$

B $\frac{2}{3}$

C $\frac{3}{7}$

D $\frac{7}{10}$

18 What is $\frac{1}{2}\%$ of $\left[(-0.5) \times \left(-\frac{1}{4}\right)\right]$?

A 0.000625

B 0.00025

C 0.065

D 0.025

19 Mario sells men's and women's shoes in his shoe store. He is considering selling children's shoes. He randomly selected 120 customers to participate in a survey. The survey results are shown below.

- 42 customers said they would shop for children's shoes
- 78 customers said they would not shop for children's shoes

Mario has an average of 440 customers per month. Based on the survey results, which value is the **best** estimate of the number of customers that would shop for children's shoes during an average month?

A 120

B 154

C 220

D 286

20 Danielle constructs a scale model of a building with a rectangular base. Her model is 2 inches in length and 1 inch in width. The scale on the model is 1 inch = 47 feet. What is the actual area, in square feet, of the base of the building?

A 141

B 282

C 2,209

D 4,418

21 What value will make the equation true?

$$-2.1 - \underline{\quad ? \quad} = -1\frac{1}{2}$$

A 3.6

B 0.6

C -0.6

D -3.6

22 Manny goes bowling.

- He has $\$25.00$ to spend.
- He spends $\$4.25$ to rent shoes.
- He spends $\$2.50$ for each game he bowls.

Which inequality can Manny use to determine x, the greatest number of games he can bowl?

A $2.5 + 4.25x \geq 25$

B $4.25 + 2.5x \geq 25$

C $2.5 + 4.25x \leq 25$

D $4.25 + 2.5x \leq 25$

23 A middle school principal wants to change the lunch menu at the school. The principal surveys the students to determine how the students would feel about the changes. Which survey method will produce the **best** representative sample?

A survey every fifth student who rides in a car to school

B survey 3 randomly selected students from every homeroom

C survey every tenth seventh-grade student during lunch

D survey 5 randomly selected students from every art, drama, and music class

24 Kerry has a bag containing white and yellow marbles. Kerry randomly selects one marble from the bag, records the result, and returns the marble to the bag. The results of the first 65 selections are shown below.

- A white marble was selected 41 times.
- A yellow marble was selected 24 times.

Based on these results, what is the probability that the next marble Kerry selects, rounded to the nearest percent, will be white?

A 41%

B 50%

C 59%

D 63%

25 Which situation results in a final value of zero?

A the overall change in temperature when the temperature goes from -10°F to 10°F

B the total profit made when a person buys an item for $\$2.25$ and then sells the item for $\$2.25$

C the overall change in altitude of a hot air balloon after rising 21 kilometers from sea level

D the total distance a person travels when he bikes 3.1 miles to school and then bikes 3.1 miles back home

26 An equation is shown below.

$$2(x - 9) = 9 \div \left(-\frac{1}{3}\right)$$

What value of x makes the equation true?

A -9.0

B -4.5

C 3.0

D 7.5

STOP

Grade 7
Mathematics Test
Session 1
v202

THE STATE EDUCATION DEPARTMENT

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

2021 Mathematics Tests Map to the Standards

Grade 7 Released Questions

Question	Type	Key	Points	Standard	Cluster	Subscore	Secondary Standard(s)
Session 1							
1	Multiple Choice	A	1	CCSS.Math.Content.7.EE.B.4a	Expressions and Equations	Expressions and Equations	
2	Multiple Choice	B	1	CCSS.Math.Content.7.NS.A.2d	The Number System	The Number System	
3	Multiple Choice	D	1	CCSS.Math.Content.7.RP.A.3	Ratios and Proportional Relationships	Ratios and Proportional Relationships	
4	Multiple Choice	A	1	CCSS.Math.Content.7.G.B.4	Geometry		
5	Multiple Choice	C	1	CCSS.Math.Content.7.RP.A.1	Ratios and Proportional Relationships	Ratios and Proportional Relationships	
6	Multiple Choice	A	1	CCSS.Math.Content.7.NS.A.3	The Number System	The Number System	
7	Multiple Choice	C	1	CCSS.Math.Content.7.RP.A.2b	Ratios and Proportional Relationships	Ratios and Proportional Relationships	
8	Multiple Choice	A	1	CCSS.Math.Content.7.NS.A.1a	The Number System	The Number System	
9	Multiple Choice	A	1	CCSS.Math.Content.7.EE.B.3	Expressions and Equations	Expressions and Equations	
10	Multiple Choice	D	1	CCSS.Math.Content.7.RP.A.3	Ratios and Proportional Relationships	Ratios and Proportional Relationships	
11	Multiple Choice	C	1	CCSS.Math.Content.7.EE.A.2	Expressions and Equations	Expressions and Equations	
12	Multiple Choice	B	1	CCSS.Math.Content.7.NS.A.3	The Number System	The Number System	
13	Multiple Choice	A	1	CCSS.Math.Content.7.RP.A.1	Ratios and Proportional Relationships	Ratios and Proportional Relationships	
14	Multiple Choice	D	1	CCSS.Math.Content.7.RP.A.3	Ratios and Proportional Relationships	Ratios and Proportional Relationships	
15	Multiple Choice	D	1	CCSS.Math.Content.7.RP.A.2a	Ratios and Proportional Relationships	Ratios and Proportional Relationships	
16	Multiple Choice	C	1	CCSS.Math.Content.7.EE.A.1	Expressions and Equations	Expressions and Equations	
17	Multiple Choice	D	1	CCSS.Math.Content.7.SP.C.7b	Statistics and Probability		
18	Multiple Choice	A	1	CCSS.Math.Content.7.EE.B.3	Expressions and Equations	Expressions and Equations	
19	Multiple Choice	B	1	CCSS.Math.Content.7.SP.A.2	Statistics and Probability		
20	Multiple Choice	D	1	CCSS.Math.Content.7.G.A.1	Geometry		
21	Multiple Choice	C	1	CCSS.Math.Content.7.NS.A.1c	The Number System	The Number System	
22	Multiple Choice	D	1	CCSS.Math.Content.7.EE.B.4b	Expressions and Equations	Expressions and Equations	
23	Multiple Choice	B	1	CCSS.Math.Content.7.SP.A.1	Statistics and Probability		
24	Multiple Choice	D	1	CCSS.Math.Content.7.SP.C.6	Statistics and Probability		
25	Multiple Choice	B	1	CCSS.Math.Content.7.NS.A.1a	The Number System	The Number System	
26	Multiple Choice	B	1	CCSS.Math.Content.7.EE.B.3	Expressions and Equations	Expressions and Equations	

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.