



Our Students. Their Moment.

**New York State Testing Program
Grade 4
Mathematics Test**

Released Questions

June 2018

New York State administered the Mathematics Tests in May 2018 and is now making approximately 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 2018 Exams

Background

In 2013, New York State 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 (SED) 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 large portions of the 2018 NYS Grades 3-8 English Language Arts and Mathematics test materials for review, discussion, and use.

For 2018, included in these released materials are at least 75 percent of the test questions that appeared on the 2018 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 of the 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 <https://www.engageny.org/resource/test-guides-english-language-arts-and-mathematics>.

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 future valid and reliable tests, some content must remain secure for possible use on future exams. As such, 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. 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

2018 Mathematics Test Session 1

Grade 4

May 1–3, 2018

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 Jean threw a softball a distance of 9 feet. Lee threw a softball 3 times as far as Jean. Which equation can be used to determine the distance, d , that Lee threw the ball?

A $d \times 3 = 9$

B $d + 3 = 9$

C $3 + 9 = d$

D $3 \times 9 = d$

- 2 Natasha and Evan are each writing a 5-page essay. Natasha completed $\frac{3}{5}$ of her essay in the morning and $\frac{2}{5}$ of her essay in the afternoon. Evan completed $\frac{4}{5}$ of his essay after school. How much more of the total essay did Natasha complete than Evan?

A $\frac{1}{5}$

B $\frac{2}{5}$

C $\frac{4}{5}$

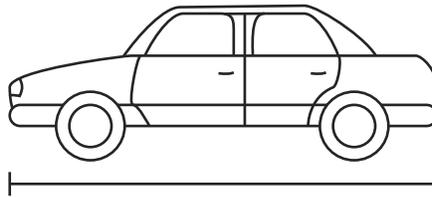
D $\frac{9}{5}$

GO ON

3 A number, rounded to the nearest thousand, is 47,000. Which number could be the number that was rounded?

- A 46,295
- B 46,504
- C 47,520
- D 47,924

4 What is the length, in inches, of the toy car shown below?



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

12 What is the measure, in degrees, of an angle that represents $\frac{50}{360}$ of a circle?

- A 50°
- B 90°
- C 310°
- D 360°

13 Ms. Larsen is buying 2 delivery vans for her business. The price of the first van is shown below.

\$16,257

The digit 2 in the price of the second van is 10 times the value of the digit 2 in the price of the first van. Which amount could be the price of the second van?

- A \$12,987
- B \$15,927
- C \$17,257
- D \$21,579

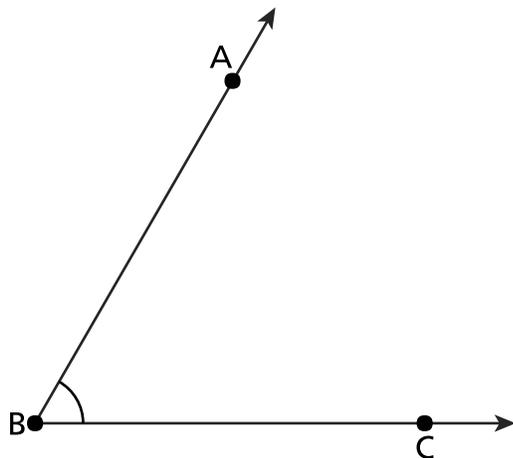
14 What is the rule for the pattern shown below?

41, 38, 35, 32, 29, . . .

- A divide by 3
- B divide by 4
- C subtract 3
- D subtract 4

GO ON

- 17 What is the measure of angle ABC?



- A 60°
B 70°
C 110°
D 120°
- 18 Which expression has the same value as $\frac{7}{12}$?

- A $\frac{2}{12} + \frac{3}{12} + \frac{3}{12}$
B $\frac{7}{12} + \frac{7}{12} + \frac{7}{12}$
C $\frac{2}{12} + \frac{1}{12} + \frac{2}{12} + \frac{1}{12}$
D $\frac{2}{12} + \frac{1}{12} + \frac{2}{12} + \frac{2}{12}$

23 What is the quotient of $1,248 \div 7$?

- A 177 remainder 9
- B 168 remainder 2
- C 178 remainder 2
- D 178 remainder 3

24 Which number sentence correctly compares two numbers?

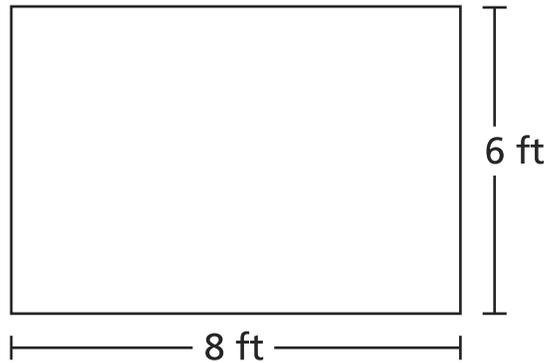
- A forty-six thousand three hundred fifteen $< 46,350$
- B $29,073 = 20,000 + 9,000 + 700 + 3$
- C $10,000 + 6,000 + 400 >$ sixteen thousand four hundred ten
- D $86,502 = 80,000 + 6,000 + 500 + 20$

25 Which expression has the same value as $7 \times \frac{3}{4}$?

- A $21 \times \frac{3}{4}$
- B $21 \times \frac{3}{28}$
- C $21 \times \frac{1}{4}$
- D $21 \times \frac{1}{28}$

GO ON

- 27 Megan's art class painted two rectangular murals. The size of the first mural is shown below.



The second mural had the same area as the first mural but had a different perimeter. Which measures could be the side lengths of the second mural?

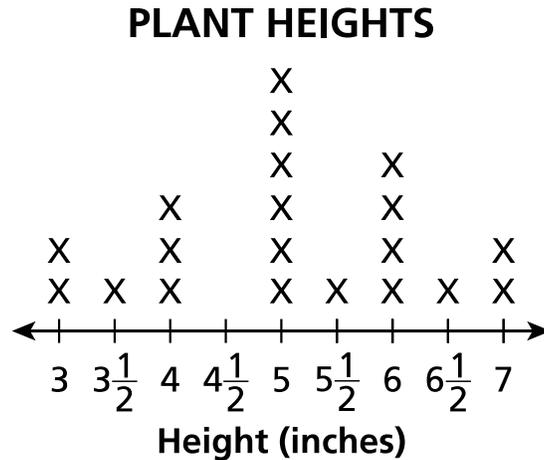
- A 8 feet and 6 feet
- B 5 feet and 9 feet
- C 4 feet and 12 feet
- D 4 feet and 10 feet
- 28 Jack picks 60 apples from an apple tree. He uses 12 of them to make applesauce. He places the remaining apples equally into 6 gift baskets. Which equation can be used to determine the number of apples, a , that Jack places into each gift basket?

- A $(60 \div 6) - 12 = a$
- B $(60 - 12) \div 6 = a$
- C $(60 - 6) - 12 = a$
- D $(60 + 12) \div 6 = a$

GO ON

29

Once a week, students in a classroom measure the heights of the tomato plants they planted in the school garden. The line plot below shows the heights of the plants at the end of the second week.



Based on the line plot, how many plants have a height greater than $4\frac{1}{2}$ inches?

- A 0
- B 6
- C 14
- D 20

30

Which statement is true?

- A $\frac{4}{12} > \frac{5}{8}$ because $\frac{5}{8}$ is greater than $\frac{1}{2}$ and $\frac{4}{12}$ is closer to 1 than $\frac{1}{2}$.
- B $\frac{4}{12} < \frac{5}{8}$ because $\frac{4}{12}$ is less than $\frac{1}{2}$ and $\frac{5}{8}$ is greater than $\frac{1}{2}$.
- C $\frac{5}{8} > \frac{4}{12}$ because $\frac{4}{12}$ and $\frac{5}{8}$ are both closer to 1 than $\frac{1}{2}$.
- D $\frac{5}{8} < \frac{4}{12}$ because $\frac{5}{8}$ and $\frac{4}{12}$ are both less than $\frac{1}{2}$.

STOP

Grade 4
2018
Mathematics Test
Session 1
May 1–3, 2018

Name: _____



New York State Testing Program

2018 Mathematics Test Session 2

Grade 4

May 1–3, 2018

Released Questions

The possession or use of any communications device is strictly prohibited when taking this examination. If you have or use any communications device, no matter how briefly, your examination will be invalidated and no score will be calculated for you.

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 Which letter has the **greatest** number of lines of symmetry?



32 Which list shows all the factors of 36?

A 1, 2, 3, 4, 9, 12, 18, 36

B 0, 1, 2, 3, 4, 9, 12, 18, 36

C 1, 2, 3, 4, 6, 9, 12, 18, 36

D 0, 1, 2, 3, 4, 6, 9, 12, 18, 36

33 Which expression shows 125,206 written in expanded form?

A $100,000 + 2,000 + 5,000 + 200 + 6$

B $100,000 + 20,000 + 5,000 + 200 + 6$

C $100,000 + 20,000 + 50,000 + 200 + 6$

D $100,000 + 20,000 + 5,000 + 2,000 + 6$

GO ON

34

The table shows the height increases, in inches, of some girls in Gina’s class from last month to this month.

HEIGHT INCREASES IN 1 MONTH

Name	Height Increase (inches)
Gina	$\frac{3}{8}$
Maxine	$\frac{2}{3}$
Shari	$\frac{2}{4}$
Vanessa	$\frac{3}{12}$

What girl had a height increase that was greater than $\frac{1}{2}$ inch?

- A Gina
- B Maxine
- C Shari
- D Vanessa

- 35 Carl used some fabric to make a seat cover. Then he used 8 times as much fabric to make a tent. He used 24 yards of fabric to make the tent. Which equation can be used to determine the amount of fabric he used to make the seat cover?

A $24 = 8 \times \underline{\quad ? \quad}$

B $24 = 8 + \underline{\quad ? \quad}$

C $8 \times 24 = \underline{\quad ? \quad}$

D $8 + 24 = \underline{\quad ? \quad}$

- 36 Ms. Clark's class went to recess at 12:00 p.m., as shown below.



The minute hand had turned 90 degrees by the time recess ended. At what time did recess end?

- A 12:15 p.m.
B 12:30 p.m.
C 12:45 p.m.
D 1:00 p.m.

GO ON

- 37** Andrew wrote the number 186,425 on the board. In which number is the value of the digit 6 exactly 10 times the value of the digit 6 in the number Andrew wrote?

- A 681,452
- B 462,017
- C 246,412
- D 125,655

- 38** Which number could be placed in the blank to make the equation true?

$$6 \times \frac{5}{6} = \underline{\quad ? \quad} \times \frac{1}{6}$$

- A 5
- B 11
- C 30
- D 36

39

Which diagram below appears to show a pair of perpendicular lines?

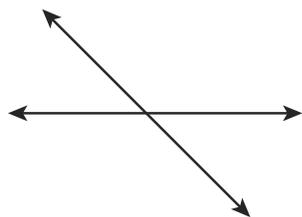


Diagram A

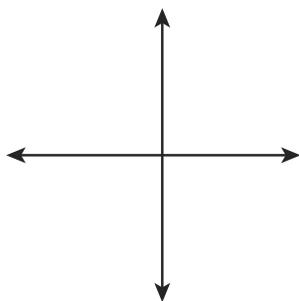


Diagram B

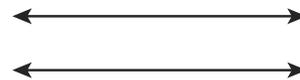


Diagram C

Explain your answer.

40

The workers at Cameron’s Flower Shop are putting 1,323 flowers into vases for a party. Each vase must hold exactly 8 flowers. What is the total number of vases the workers can fill completely?

Show your work.

Answer _____ vases

GO ON

- 41** Samantha walks a total of $\frac{2}{3}$ mile to get to and from school each day. Write an expression that can be used to find the total number of miles that Samantha walks to and from school over 5 days. Then evaluate the expression.

Expression _____

Show your work.

Answer _____ miles walked

GO ON

42

Cindy recycled 54 pounds of paper. She recycled 9 times as many pounds of paper as Monica. Write an equation that can be used to find m , the number of pounds of paper Monica recycled. Then solve the equation to find the number of pounds of paper Monica recycled.

Show your work.

Answer $m =$ _____ pounds of paper

GO ON

- 43** Of the animals at a pet show, $\frac{3}{8}$ were cats and $\frac{4}{8}$ were dogs. The rest of the animals were rabbits. What fraction of the animals at the pet show were rabbits?

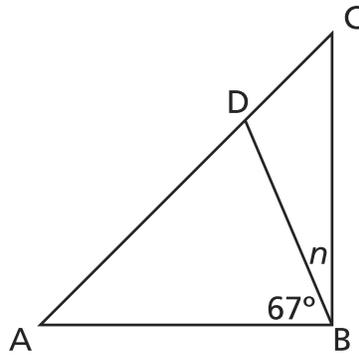
Show your work.

Answer _____

GO ON

44

Right triangle ABC is shown below.



Write an equation that can be used to determine the angle measure, in degrees, of angle DBC. Let n represent the measure of angle DBC. Then determine the measure of n .

Show your work.

Answer $n =$ _____ degrees

GO ON

45

A teacher buys 8 packs of orange erasers and 6 packs of blue erasers for his classroom. There are 24 orange erasers in a pack and 28 blue erasers in a pack. What is the total number of erasers the teacher buys for his classroom?

Show your work.

Answer _____ erasers

STOP

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2018 Mathematics Tests Map to the Standards
Grade 4 Released Questions on EngageNY

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	D	1	CCSS.Math.Content.4.OA.A.1	Operations and Algebraic Thinking	0.87		
2	Multiple Choice	A	1	CCSS.Math.Content.4.NF.B.3d	Number and Operations— Fractions	0.78		
3	Multiple Choice	B	1	CCSS.Math.Content.4.NBT.A.3	Number and Operations in Base Ten	0.73		
4	Multiple Choice	A	1	CCSS.Math.Content.3.MD.B.4	Measurement and Data	0.54		
12	Multiple Choice	A	1	CCSS.Math.Content.4.MD.C.5a	Measurement and Data	0.55		
13	Multiple Choice	A	1	CCSS.Math.Content.4.NBT.A.1	Number and Operations in Base Ten	0.37		
14	Multiple Choice	C	1	CCSS.Math.Content.4.OA.C.5	Operations and Algebraic Thinking	0.81		
17	Multiple Choice	A	1	CCSS.Math.Content.4.MD.C.6	Measurement and Data	0.69		
18	Multiple Choice	D	1	CCSS.Math.Content.4.NF.B.3b	Number and Operations— Fractions	0.90		
23	Multiple Choice	C	1	CCSS.Math.Content.4.NBT.B.6	Number and Operations in Base Ten	0.62		
24	Multiple Choice	A	1	CCSS.Math.Content.4.NBT.A.2	Number and Operations in Base Ten	0.68		
25	Multiple Choice	C	1	CCSS.Math.Content.4.NF.B.4a	Number and Operations— Fractions	0.57		
27	Multiple Choice	C	1	CCSS.Math.Content.3.MD.D.8	Measurement and Data	0.52		
28	Multiple Choice	B	1	CCSS.Math.Content.4.OA.A.3	Operations and Algebraic Thinking	0.69		
29	Multiple Choice	C	1	CCSS.Math.Content.4.MD.B.4	Measurement and Data	0.52		
30	Multiple Choice	B	1	CCSS.Math.Content.4.NF.A.2	Number and Operations— Fractions	0.61		

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 2								
31	Multiple Choice	C	1	CCSS.Math.Content.4.G.A.3	Geometry	0.81		
32	Multiple Choice	C	1	CCSS.Math.Content.4.OA.B.4	Operations and Algebraic Thinking	0.57		
33	Multiple Choice	B	1	CCSS.Math.Content.4.NBT.A.2	Number and Operations in Base Ten	0.87		
34	Multiple Choice	B	1	CCSS.Math.Content.4.NF.A.2	Number and Operations— Fractions	0.65		
35	Multiple Choice	A	1	CCSS.Math.Content.4.OA.A.1	Operations and Algebraic Thinking	0.52		
36	Multiple Choice	A	1	CCSS.Math.Content.4.MD.C.5b	Measurement and Data	0.65		
37	Multiple Choice	B	1	CCSS.Math.Content.4.NBT.A.1	Number and Operations in Base Ten	0.52		
38	Multiple Choice	C	1	CCSS.Math.Content.4.NF.B.4b	Number and Operations— Fractions	0.62		
39	Constructed Response		2	CCSS.Math.Content.4.G.A.1	Geometry		1.18	0.59
40	Constructed Response		2	CCSS.Math.Content.4.NBT.B.6	Number and Operations in Base Ten		1.02	0.51
41	Constructed Response		2	CCSS.Math.Content.4.NF.B.4c	Number and Operations— Fractions		0.96	0.48
42	Constructed Response		2	CCSS.Math.Content.4.OA.A.2	Operations and Algebraic Thinking		0.88	0.44
43	Constructed Response		2	CCSS.Math.Content.4.NF.B.3d	Number and Operations— Fractions		1.32	0.66
44	Constructed Response		2	CCSS.Math.Content.4.MD.C.7	Measurement and Data		0.7	0.35
45	Constructed Response		3	CCSS.Math.Content.4.NBT.B.5	Number and Operations in Base Ten		1.8	0.60

*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.