New York State
EDUCATION DEPARTMENT
Knowledge › Skill › Opportunity

New York State Testing Program
Grade 6
Mathematics Test
Chinese (Simplified)

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.

姓名: _____

Chinese (Simplified) Edition
Grade 6
Mathematics Test
Session 1
v202

纽约州测试项目
数学测试
第 1 部分

6 年级

v202

Released Questions

第 1 部分

6 年级数学参考表

单位转换

1 英寸 = 2.54 厘米
1 米 = 39.37 英寸
1 英里 = 5,280 英尺
1 英里 = 1,760 码
1 英里 = 1.609 公里

1 公里 = 0.62 英里
1 磅 = 16 盎司
1 磅 = 0.454 公斤
1 公斤 = 2.2 磅
1 吨 = 2,000 磅

1 杯 = 8 液体盎司
1 品脱 = 2 杯
1 夸脱 = 2 品脱
1 加仑 = 4 夸脱
1 加仑 = 3.785 升
1 升 = 0.264 加仑
1 升 = 1,000 立方厘米

公式

三角形	$A = \frac{1}{2}bh$
直角长方体	$V = Bh$ 或 $V = lwh$

第 1 部分

考试提示

以下是一些建议，可以帮助你做到最好：

- 仔细阅读每一道题目，并在做出选择前思考答案。
- 已向你提供了数学工具（一把尺子和一个量角器）和参考表供你在考试中使用。由你决定各工具及参考表将在何时有用。你应当在认为数学工具和参考表对你答题有帮助时使用它们。

1 以下是一个方程式。

$$12 - 9 + c = 12$$

请问要使这个方程式成立，c 的数值应该是多少?

A 0

B 3

C 9

D 12

2 凯特收藏了一些硬币。她将 7 枚硬币放在一个盒子里，这部分只占到她的所有硬币收藏的 5%。请问凯特的硬币收藏中一共有多少枚硬币?

A 12

B 14

C 120

D 140

3 请问 36 和 90 的最大公约数是什么?

A 6

B 18

C 36

D 180

续下页

4 罗伯特的年龄是 r，茱莉亚的年龄是 j，这两者之间的关系可用以下方程式表示。

$$r = j + 3$$

请问以下哪个数值表代表了罗伯特的年龄和茱莉亚年龄之间的关系?

A

拟定年龄

罗伯特的年龄，r（岁）	茱莉亚的年龄，j（岁）
9	12
15	18
21	24

C

拟定年龄

罗伯特的年龄，r（岁）	茱莉亚的年龄，j（岁）
9	6
15	12
21	18

B

拟定年龄

罗伯特的年龄，r（岁）	茱莉亚的年龄，j（岁）
9	3
15	5
21	7

D

拟定年龄

罗伯特的年龄，r（岁）	茱莉亚的年龄，j（岁）
9	27
15	45
21	63

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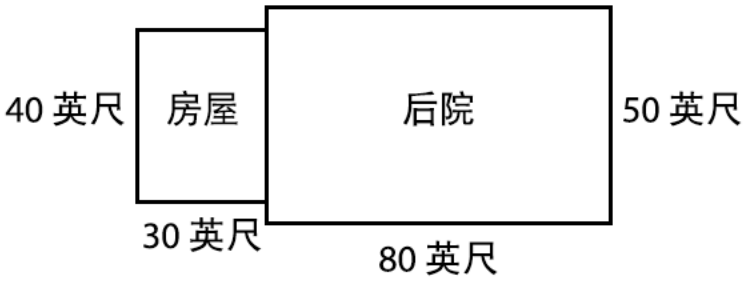
5 下图展示了一座长方形房屋和一个长方形后院的尺寸。



请问这座房屋和后院的总面积是多少平方英尺?

A 200

B 400

C 4,000

D 5,200

6 一个百吉饼店销售了 8 个原味百吉饼和 13 个黑麦百吉饼。请问已销售的黑麦百吉饼的数量和原味百吉饼的数量的比率是多少?

A 8 : 13

B 13 : 8

C 8 : 21

D 21 : 8

续下页

7 一个坐标平面中绘制有一个长方形。这个长方形有两个顶点的坐标分别是 (–5,8) 和 (–5,–6)。请问这两个顶点之间的距离是多少?

A 2 个单位

B 4 个单位

C 10 个单位

D 14 个单位

8 请问要使下列方程式成立，m 的数值是多少?

$$m + 7.9 = 39\frac{1}{2}$$

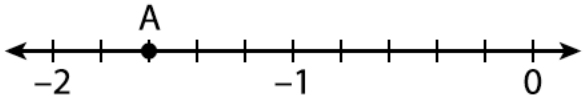
A 5.0

B 31.6

C 32.4

D 47.4

9 以下数轴中表示了点 A。



请问点 A 的位置是什么?

A –1.3

B –1.35

C –1.6

D –1.75

续下页

10 一个直角长方体的底面积是 $25\frac{1}{2}$ 平方英尺，体积是 153 立方英尺。请问这个直角长方体的高是多少英尺?

A 6

B 51

C $127\frac{1}{2}$

D $3{,}901\frac{1}{2}$

11 所有六年级的学生在星期一要么会自己购买午餐，要么会从家里自带午餐。

- 24% 的学生自己购买了午餐。
- 190 名学生从家里自带午餐。

请问六年级一共有多少学生?

A 76

B 166

C 214

D 250

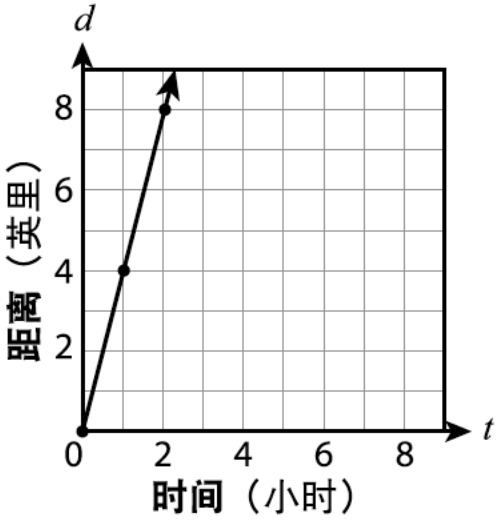
续下页

12 乔使用匀速在跑步机上行走。以下方程式表示了他行走的小时数 t 和他行走的距离 d 英里之间的关系。

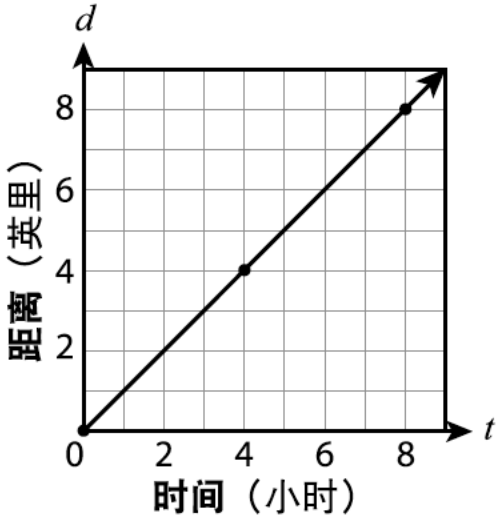
$$d = 4t$$

请问下面哪个图代表了乔行走的时间和距离之间的关系?

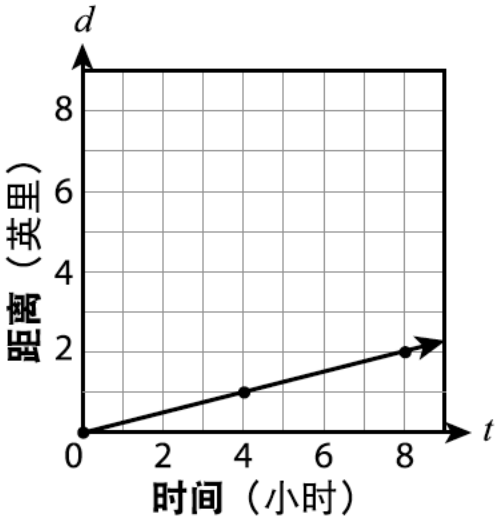
A



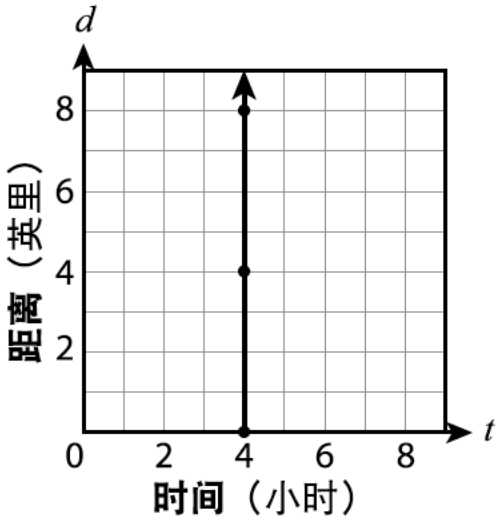
C



B



D



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13 以下是一个表达式。

$$\frac{143 - 35}{3^3}$$

请问该表达式的数值是多少?

A 4

B 9

C 12

D 18

14 一种冰淇淋每 4 盎司中含有 230 卡路里。请问 6 盎司这种冰淇淋中含有多少卡路里?

A 232

B 236

C 345

D 460

15 如果方程式 $33x = 11$ 成立，请问 x 的数值是多少?

A $\frac{1}{3}$

B $\frac{3}{11}$

C $\frac{11}{3}$

D 3

续下页

16 一个形状由 12 个相同大小的直角三角形构成。每个直角三角形的底长 4 厘米，高 5 厘米，请问这个形状的总面积是多少平方厘米？

A 10

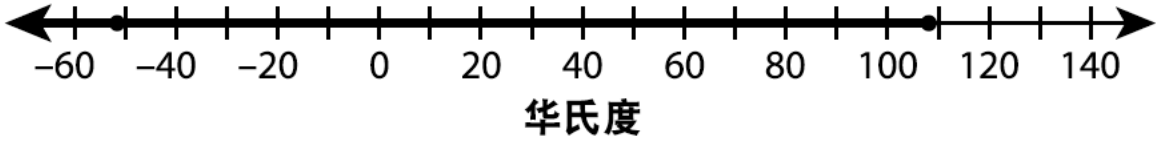
B 60

C 120

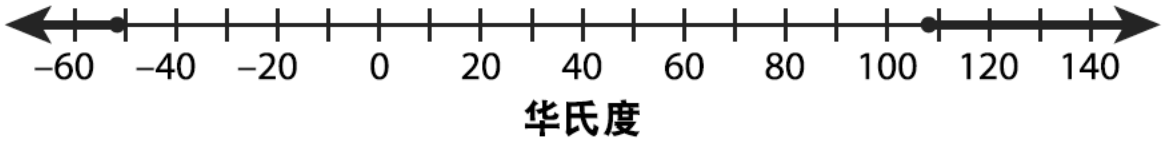
D 240

17 根据国家气候数据中心的记录，纽约州有记录的最低气温是 -52 华氏度，最高气温是 108 华氏度。根据这些数值，请问哪一条数轴**最能**代表纽约州的气温范围？

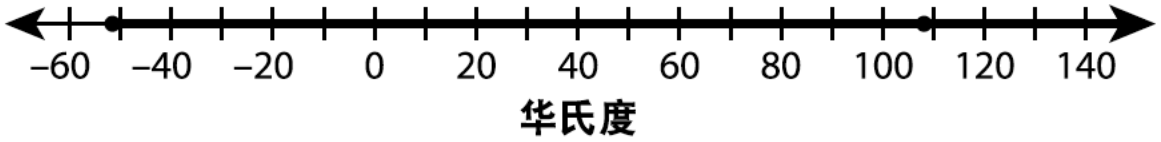
A



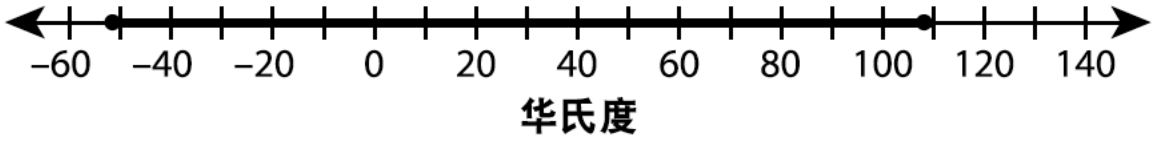
B



C



D



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18 帕特在 30 秒内拍篮球 25 次。请问帕特以这样的速度拍球，在 150 秒内能拍多少次?

A 120

B 125

C 144

D 145

19 请问哪个表达式等于 $5(4x + 3) - 2x$?

A $18x + 15$

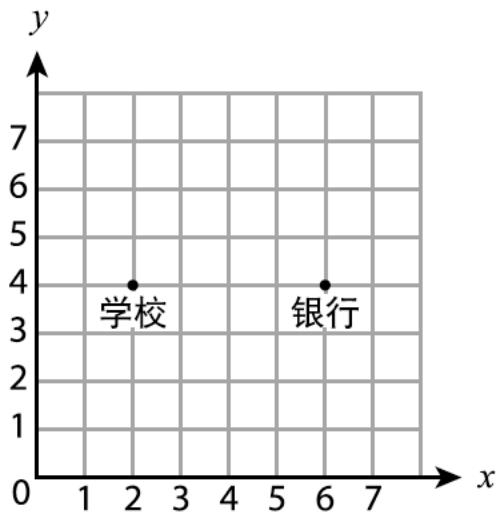
B $18x + 3$

C $7x + 8$

D $2x + 8$

续下页

20 马克在以下坐标平面上标记了几个点，代表他的学校和一家银行的位置。



马克还想在这个坐标平面上添加一个图书馆的位置。图书馆到学校的距离和银行到学校的距离相同。请问以下哪个有序数对可能是图书馆的坐标?

A (2,4)

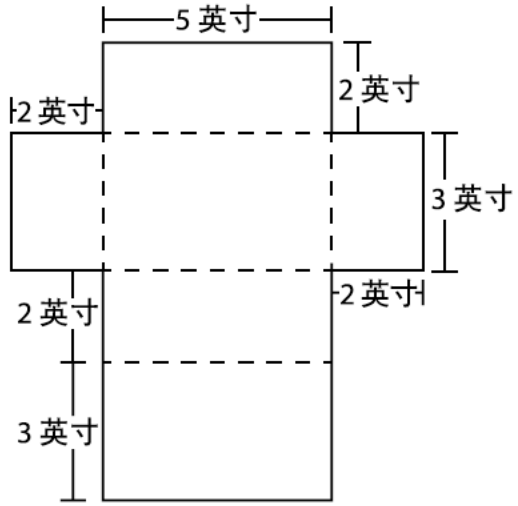
B (2,8)

C (4,4)

D (6,8)

续下页

21 一名学生绘制了下图，用以展示一个直角长方体容器的尺寸。



请问这个容器的表面积是多少平方英寸?

A 19

B 30

C 38

D 62

22 请问以下哪两个表达式是相等的?

A $x + x + x$ 和 x^3

B $14x + 10 - 2x$ 和 $16x + 10$

C $12x + 16x$ 和 $4(3x + 4x)$

D $12x^2 + 5x + 10$ 和 $17x^2 + 10$

续下页

23 一台机器以匀速填满盒子。它在 35 分钟结束后填满了 5 个盒子。请问以下哪一个表代表了这台机器填满盒子所用的分钟时长和已填满的盒子数量之间的关系？

A

填装盒子

时间（分钟）	已填满的盒子
7	1
14	2
21	3
28	4

C

填装盒子

时间（分钟）	已填满的盒子
1	7
2	14
3	21
4	28

B

填装盒子

时间（分钟）	已填满的盒子
5	1
10	2
15	3
20	4

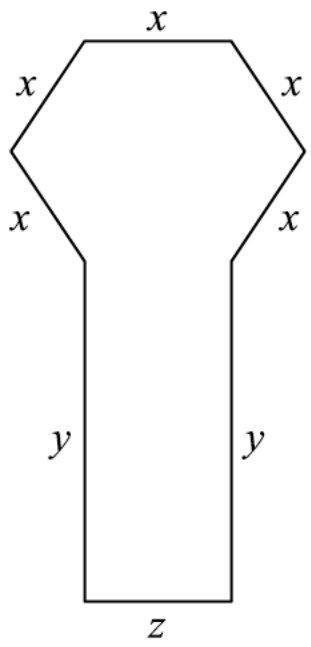
D

填装盒子

时间（分钟）	已填满的盒子
1	5
2	10
3	15
4	20

续下页

24 请问哪个表达式代表了下图的周长?



A $5x + 2y$

B $x + y + z$

C $5x + 2y + z$

D $(5 + 2 + 1)(x + y + z)$

结束

6 年级
数学测试
第 1 部分
v202

Grade 6
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 6 Released Questions

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