



New York State
EDUCATION DEPARTMENT
Knowledge > Skill > Opportunity

**New York State Testing Program
Grade 7
Mathematics Test
Chinese (Traditional)**

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 (Traditional) Edition

Grade 7

Mathematics Test

Session 1

v202

紐約州考試計劃

數學考試

第 1 卷

7 年級

v202

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Released Questions

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7年級數學參考資料

換算

1英寸 = 2.54釐米

1米 = 39.37英寸

1英里 = 5,280英尺

1英里 = 1,760碼

1英里 = 1.609公里

1公里 = 0.62英里

1磅 = 16盎司

1磅 = 0.454千克

1千克 = 2.2磅

1噸 = 2,000磅

1杯 = 8液盎司

1品脫 = 2杯

1夸脫 = 2品脫

1加侖 = 4夸脫

1加侖 = 3.785升

1升 = 0.264加侖

1升 = 1,000立方釐米

公式

三角形

$$A = \frac{1}{2}bh$$

平行四邊形

$$A = bh$$

圓形

$$A = \pi r^2$$

圓形

$$C = \pi d \text{ 或 } C = 2\pi r$$

稜柱

$$V = Bh$$



第 1 卷



考試建議

以下建議可協助你獲得好成績：

- 在作出選擇之前，請仔細閱讀每一試題，好好思考後再作答。
- 本次考試提供數學工具（一把尺子、一個量角器和一個計算器）和一張參考資料供你使用。你可以自行決定使用各個工具和參考資料的時機。考試當中只要你覺得使用數學工具和參考資料能協助你解答就可以使用。

1 克拉拉去了小型高爾夫球場。她需為一張門票支付 \$7.50，每打一場高爾夫球需支付 \$6.25。克拉拉為門票和一些場高爾夫球共支付了 \$26.25。請問可以用哪個方程來確定克拉拉所打的高爾夫球場數 x ？

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 與 $\frac{7}{12}$ 相當的精確小數是什麼？

A 0.583

B $0.58\bar{3}$

C 1.714

D $1.71\bar{4}$

3 約瑟夫在餐廳吃午餐的費用為 \$13.00（不含稅）。他給服務員留下了午餐費用的 17% 作為小費（不含稅）。包括小費，午餐的總費用是多少（不含稅）？

A \$2.21

B \$10.79

C \$13.17

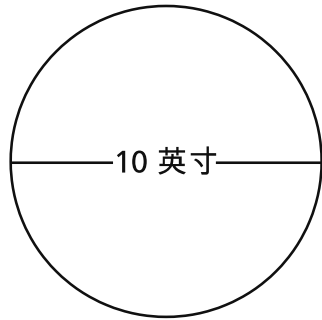
D \$15.21

繼續

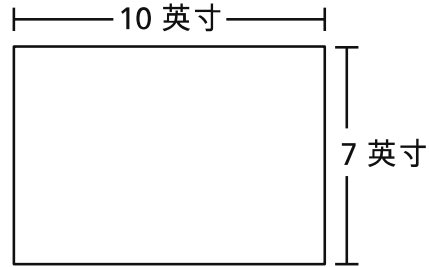
4

佐敦正在烘烤布朗尼蛋糕，他將選擇使用圓形或矩形平底鍋。每個平底鍋底部的尺寸如下所示。

圓形平底鍋的底部



矩形平底鍋的底部



哪個陳述正確地描述了圓形平底鍋和矩形平底鍋底部面積的比較？

- A 圓形平底鍋的底部面積比矩形平底鍋的底部面積大了約 8.5 平方英寸。
- B 圓形平底鍋的底部面積比矩形平底鍋的底部面積大了約 244.2 平方英寸。
- C 圓形平底鍋的底部面積比矩形平底鍋的底部面積小了約 7.2 平方英寸。
- D 圓形平底鍋的底部面積比矩形平底鍋的底部面積小了約 38.6 平方英寸。

5

平均而言，莎恩特喝 $\frac{1}{2}$ 玻璃杯（容量為 6 盎司）的水（在 $\frac{2}{3}$ 小時內）。她一小時喝多少水？

- A 0.75 盎司
- B 2 盎司
- C 4.5 盎司
- D 9 盎司

繼續

6

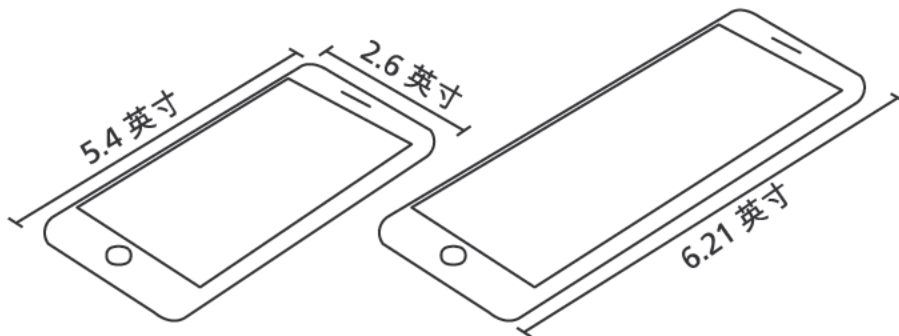
請問以下所示表達式的值是多少？

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

- A -117
- B -13
- C 3
- D 27

7

該圖顯示了手機的長度和寬度，以及相同品牌手機的較大版本的長度。



兩部手機的長度和寬度是成比例的。較大版本手機的寬度是多少英寸？

- A 1.15
- B 2.26
- C 2.99
- D 3.41

繼續

8

從午夜 12:00 到凌晨 6:00 點，氣溫下降了 12°C 。如果原始溫度是 12°C ，請問哪個表達式可用於表示這種情況？

- A $12 - 12$
- B $12 + 12$
- C $12 - (-12)$
- D $-12 + (-12)$

9

佐敦要準備 200 個胸牌在會上使用。每種顏色的胸牌數量如下所示。

- 35% 的胸牌為藍色
- $\frac{3}{8}$ 的胸牌為黃色
- 其餘所有胸牌為紅色

請問佐敦的紅色胸牌數量有多少？

- A 55
- B 90
- C 110
- D 145

10

詹森先生的課餘俱樂部中男孩和女孩的比例與格林女士課餘俱樂部中男孩和女孩的比例相同。詹森先生的俱樂部中有 4 名男孩和 12 名女孩。格林女士的俱樂部中有 6 名男孩。請問格林女士的俱樂部中有多少名女孩？

- A 2
- B 12
- C 14
- D 18

11

商店中商品的正常價格是 p 美元，該商品正在以低於正常價格 20% 的價格出售。下面的某些表達式代表了該商品的銷售價格（以美元計）。

表達式 A: $0.2p$

表達式 B: $0.8p$

表達式 C: $1 - 0.2p$

表達式 D: $p - 0.2p$

表達式 E: $p - 0.8p$

哪兩個表達式分別代表了該商品的銷售價格？

- A 表達式 A 和表達式 E
- B 表達式 B 和表達式 C
- C 表達式 B 和表達式 D
- D 表達式 C 和表達式 D

繼續

12 上週，一家雜貨店的蘋果價格為每磅 \$1.60。這週，該雜貨店的蘋果以 10% 的折扣銷售。請問這週該雜貨店 $4\frac{1}{2}$ 磅蘋果的總價格是多少？

- A \$4.77
- B \$6.48
- C \$6.75
- D \$6.93

13 物體以恒定速率沿水平直線路徑行進。物體行進了這條路徑的 $\frac{1}{20}$ 長度，用時 $\frac{3}{4}$ 秒。按照這個速率，物體在整個路徑上行進需要多少秒？

- A 15
- B $15\frac{3}{4}$
- C 20
- D $20\frac{3}{4}$

14

傢俱店正在促銷，在此期間沙發的銷售價格比原價低 $\frac{1}{3}$ 。沙發的原價是 \$1,029.00。客戶用現金付款可以獲得銷售價格 5% 的額外折扣。銷售稅為最終價格的 6.5%，它將在結帳時增加到沙發的費用中。對於使用現金付款的客戶，沙發的總費用（包含銷售稅）是多少？

- A \$343.00
- B \$651.70
- C \$686.00
- D \$694.06

繼續

15

哪個表顯示了 x 和 y 之間的比例關係？

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

哪個表達式等於 $7a - 8 - 12a + 4$ ？

A $-9a$

B $31a$

C $-5a - 4$

D $19a + 12$

繼續

17

一個盒子包含三種不同尺寸的迴紋針。下面列出了每種尺寸迴紋針的數量。

- 100 小號迴紋針
- 250 中號迴紋針
- 150 大號迴紋針

從盒子中隨機取出一枚迴紋針。所選擇的迴紋針是小號或中號的概率是多少？

- A** $\frac{1}{3}$
- B** $\frac{2}{3}$
- C** $\frac{3}{7}$
- D** $\frac{7}{10}$

18

$\frac{1}{2}\%$ 乘以 $\left[(-0.5) \times \left(-\frac{1}{4}\right)\right]$ 是多少？

- A** 0.000625
- B** 0.00025
- C** 0.065
- D** 0.025

繼續

19

馬利奧在他的鞋店裡賣男鞋和女鞋。他正在考慮賣童鞋。他隨機選擇了 120 位顧客參與調查。調查結果如下所示。

- 42 位顧客表示他們會購買童鞋
- 78 位顧客表示他們不會購買童鞋

馬利奧每月平均有 440 位顧客。根據調查結果，哪個值是平均月份購買童鞋顧客數量的最佳估計值？

- A 120
- B 154
- C 220
- D 286

20

丹妮爾做了一個帶有矩形底座的建築物的比例模型。她的模型長 2 英寸，寬 1 英寸。模型的比例是 1 英寸 = 47 英尺。建築物底部的實際面積是多少平方英尺？

- A 141
- B 282
- C 2,209
- D 4,418

繼續

21

什麼值可以使以下方程式成立？

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

- A 3.6
- B 0.6
- C -0.6
- D -3.6

22

曼尼去打保齡球。

- 他可花費的金額為 \$25.00。
- 租鞋花費 \$4.25。
- 每打一場保齡球賽要花費 \$2.50。

以下哪個不等式可以算出曼尼最多能打幾場保齡球 x ？

- A $2.5 + 4.25x \geq 25$
- B $4.25 + 2.5x \geq 25$
- C $2.5 + 4.25x \leq 25$
- D $4.25 + 2.5x \leq 25$

繼續

23

一名中學校長想要變更學校的午餐菜單。校長調查學生，以確定學生對變更的感受。哪種調查方法將產生最佳代表性樣本？

- A 調查乘坐汽車上學的每第五名學生
- B 從每個教室調查 3 名隨機選擇的學生
- C 在午餐期間對每第十名七年級學生進行調查
- D 從每個藝術、戲劇和音樂課堂中隨機抽取 5 名學生進行調查

24

凱瑞有一個裝有白色和黃色彈珠的袋子。凱瑞從包中隨機選擇一顆彈珠，記錄結果，然後將彈珠放回袋子中。前 65 次的選擇結果如下。

- 白色的彈珠被選擇了 41 次。
- 黃色的彈珠被選擇了 24 次。

基於這些結果，凱瑞下一顆選擇的是白色彈珠的概率是多少（四捨五入到最接近的百分比）？

- A 41%
- B 50%
- C 59%
- D 63%

繼續

25

請問以下哪種情況會導致最終值為零？

- A 當溫度從 -10°F 升高到下列溫度時的總體溫度變化： 10°F
- B 當某人以 $\$2.25$ 購買一件物品並以 $\$2.25$ 將其賣出時產生的總利潤
- C 熱氣球從海平面升高 21 公里後其總體高度變化
- D 當某人騎自行車 3.1 英里到學校，再騎自行車 3.1 英里返回家中時，其騎自行車的總距離

26

下面顯示了一個方程式。

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

請問 x 的值是多少時可使該方程式成立？

- A -9.0
- B -4.5
- C 3.0
- D 7.5

停止作答

7 年級
數學考試
第 1 卷
v202

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.