New York State
EDUCATION DEPARTMENT
Knowledge › Skill › Opportunity

New York State Testing Program
Grade 6
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.

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 6
Mathematics Test
Session 1
v202

紐約州考試計劃
數學考試
第 1 卷

6 年級

v202

Released Questions

6年級數學參考資料

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（一把尺子和一個量角器）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 下面顯示一個方程式。

$$12 - 9 + c = 12$$

請問 c 的值是多少時可使該方程式成立？

A　0

B　3

C　9

D　12

2 凱特收藏錢幣。她將 7 枚錢幣裝成一盒，這些錢幣僅占其總體收藏數量的 5%。請問凱特的錢幣收集總共收藏了多少枚錢幣？

A　12

B　14

C　120

D　140

3 36 與 90 的最大公因數是多少？

A　6

B　18

C　36

D　180

4 羅伯特的年齡 r 和朱莉亞的年齡 j 之間的關係可用以下方程式表示。

$$r = j + 3$$

請問以下哪個表的值可代表羅伯特年齡與朱莉亞年齡之間的關係？

可能的年齡

A

羅伯特的年齡 r（歲）	朱莉亞的年齡 j（歲）
9	12
15	18
21	24

可能的年齡

C

羅伯特的年齡 r（歲）	朱莉亞的年齡 j（歲）
9	6
15	12
21	18

可能的年齡

B

羅伯特的年齡 r（歲）	朱莉亞的年齡 j（歲）
9	3
15	5
21	7

可能的年齡

D

羅伯特的年齡 r（歲）	朱莉亞的年齡 j（歲）
9	27
15	45
21	63

5 下圖顯示一座帶有矩形後院的矩形房屋的尺寸。

40 ft　房屋　後院　50 ft

30 ft　　　　80 ft
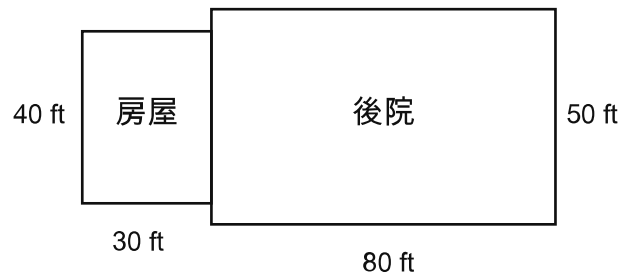
請問該座房屋和後院的總面積是多少平方英尺？

A　200

B　400

C　4,000

D　5,200

6 一家百吉餅店賣出了 8 個原味百吉餅和 13 個黑麥百吉餅。請問賣出的黑麥百吉餅與原味百吉餅的數目之比是多少？

A　8 : 13

B　13 : 8

C　8 : 21

D　21 : 8

7 一個座標平面上畫了一個矩形。該矩形其中兩個頂點的座標為 $(-5, 8)$ 和 $(-5, -6)$。請問這兩個頂點之間的距離是多少？

A 2 個單位

B 4 個單位

C 10 個單位

D 14 個單位

8 請問 m 的值是多少時以下方程式成立？

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

A 5.0

B 31.6

C 32.4

D 47.4

9 下面的數軸上顯示了點 A。
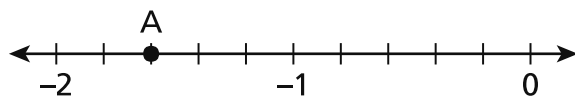
請問點 A 的位置是什麼？

A -1.3

B -1.35

C -1.6

D -1.75

10 一個直角矩形棱柱的底面面積為 $25\frac{1}{2}$ 平方英尺，體積為 153 立方英尺。請問該直角矩形棱柱的高是多少英尺？

A   6

B   51

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

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

11 星期一，六年級的所有學生都會自己購買午餐或者從家自帶午餐。

- 已知 **24%** 的學生購買午餐。
- **190** 名學生從家自帶午餐。

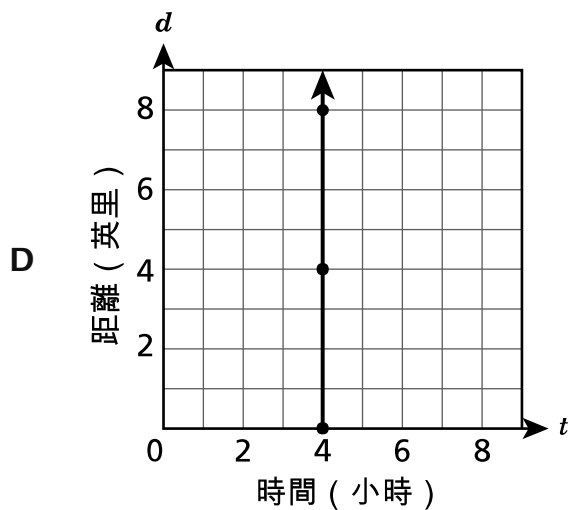請問六年級共有多少名學生？

A   76

B   166

C   214

D   250

繼續

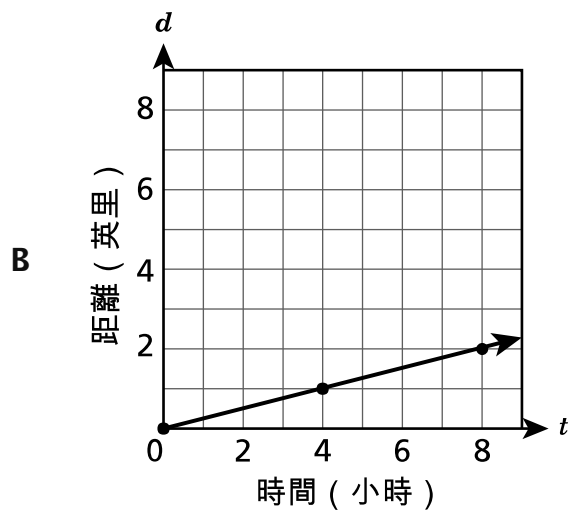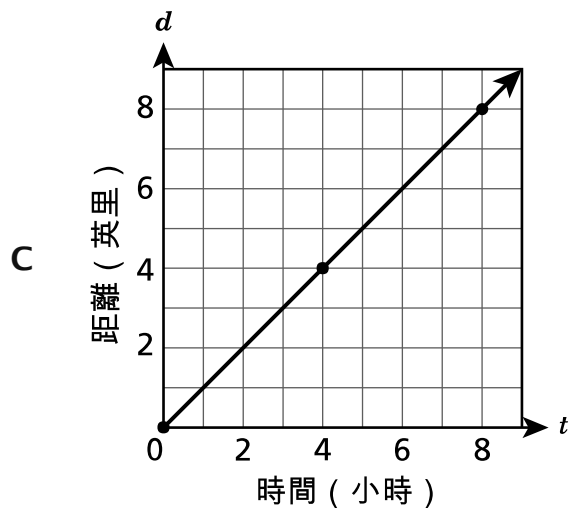**12** 喬以恒速在跑步機上走路。以下方程式描述走路時間（單位：小時）t 與走路距離（單位：英里）d 之間的關係。

$$d = 4t$$

請問以下哪張圖能夠代表喬走路時間與走路距離之間的關係？
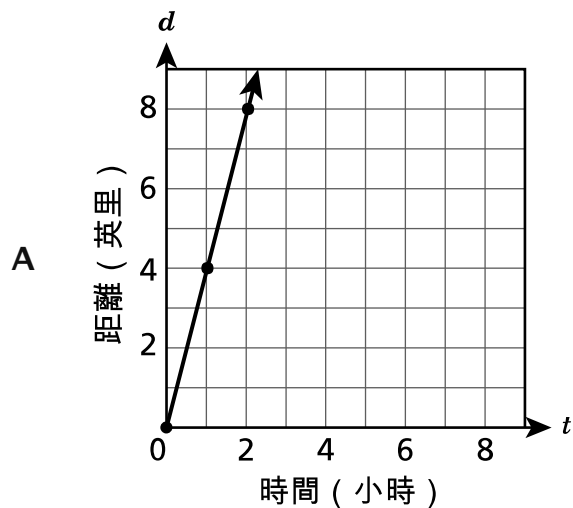
13 下面顯示一個表達式。

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

請問這個表達式的值是多少？

A　　4

B　　9

C　　12

D　　18

14 有一種冰淇淋，4 盎司中含有 230 卡路里熱量。請問6 盎司這種冰淇淋含有多少卡路里？

A　　232

B　　236

C　　345

D　　460

15 請問 x 的值是多少時方程式 $33x = 11$ 成立？

A　　$\dfrac{1}{3}$

B　　$\dfrac{3}{11}$

C　　$\dfrac{11}{3}$

D　　3

繼續

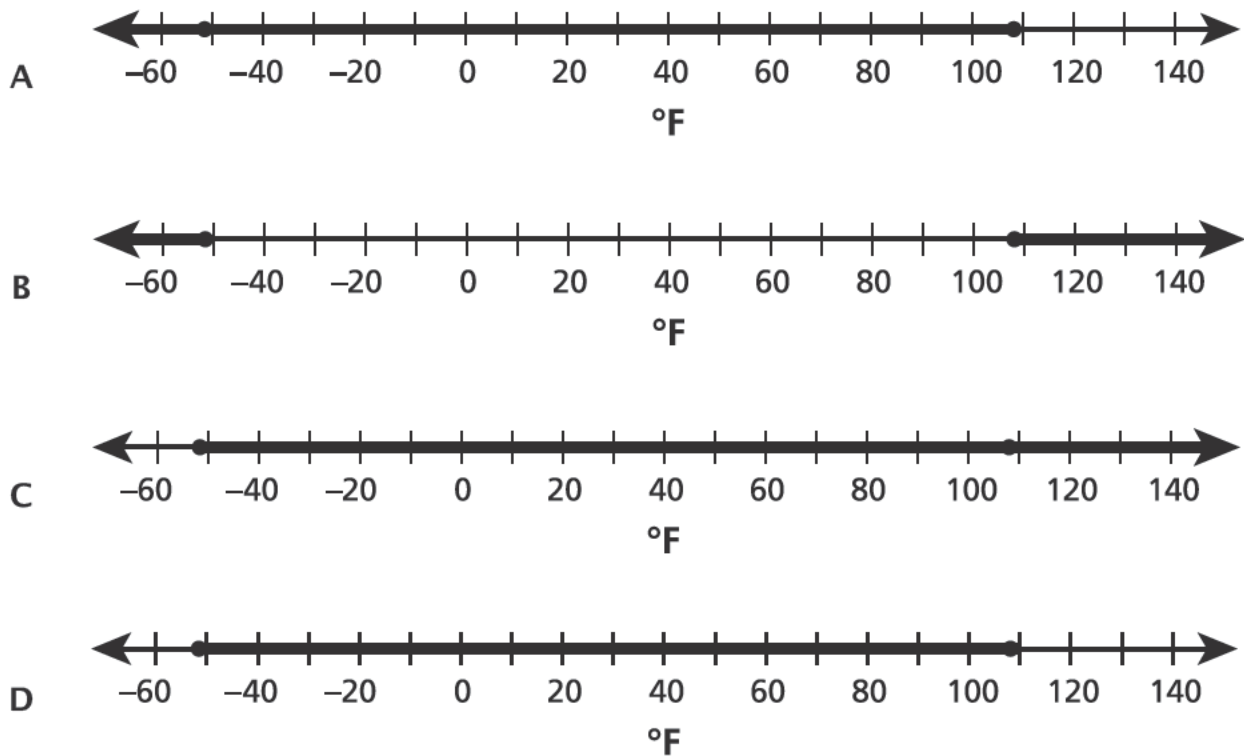**16** 一個形狀由 12 個大小相等的直角三角形組成。每個直角三角形的底邊長為 4 釐米，高為 5 釐米。請問該形狀的總面積是多少平方釐米？

A   10

B   60

C   120

D   240

17 據美國國家氣候數據中心數據顯示，紐約州的最低溫度記錄為 −52°F，最高溫度記錄為 108°F。根據這些值，下面哪個數軸**最恰當地**代表了紐約州的溫度範圍？

A

B

C

D

18 帕特在 30 秒內可拍籃球 25 次。按該速率計算，帕特在 150 秒內大約可拍球多少次？

A 120

B 125

C 144

D 145

19 哪個表達式等於 $5(4x + 3) - 2x$？

A $18x + 15$

B $18x + 3$

C $7x + 8$

D $2x + 8$

繼續

20 馬克在以下座標平面上畫了兩個點來代表學校和銀行的位置。
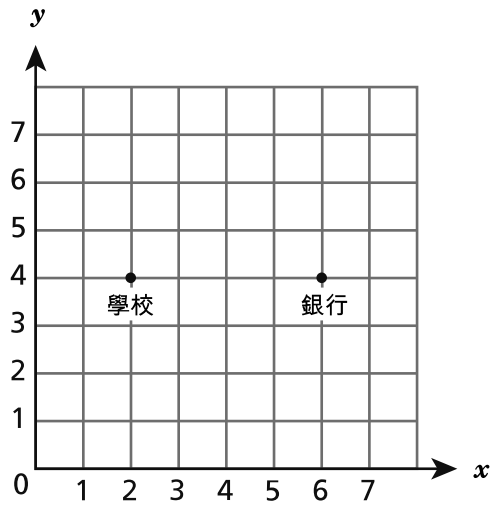
馬克想在該座標平面上增加圖書館的位置。圖書館到學校的距離與銀行到學校的距離相同。請問哪個有序對可能代表圖書館的座標？

A $(2, 4)$

B $(2, 8)$

C $(4, 4)$

D $(6, 8)$

一名學生繪製了以下平面展開圖來表示一個容器的尺寸，該容器的形狀類似於直角矩形棱柱形狀。
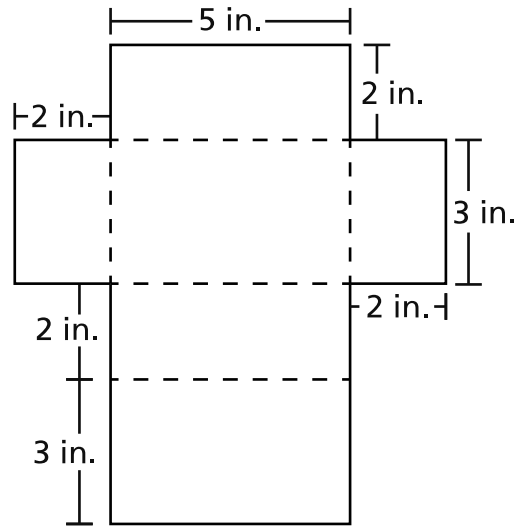
請問該容器的表面積是多少平方英寸？

A   19

B   30

C   38

D   62

22 哪兩個表達式是相等的？

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 $17x^2 + 10$

23 一台機器以恒速填充箱子。工作 35 分鐘後，它填充了5 個箱子。請問以下哪個表格能夠代表機器工作時間（單位：分鐘）與所填充箱子數量之間的關係？

填充箱子

A

時間 （分鐘）	填充的 箱子數
7	1
14	2
21	3
28	4

填充箱子

C

時間 （分鐘）	填充的 箱子數
1	7
2	14
3	21
4	28

填充箱子

B

時間 （分鐘）	填充的 箱子數
5	1
10	2
15	3
20	4

填充箱子

D

時間 （分鐘）	填充的 箱子數
1	5
2	10
3	15
4	20

24 請問哪個表達式代表下圖的周長？
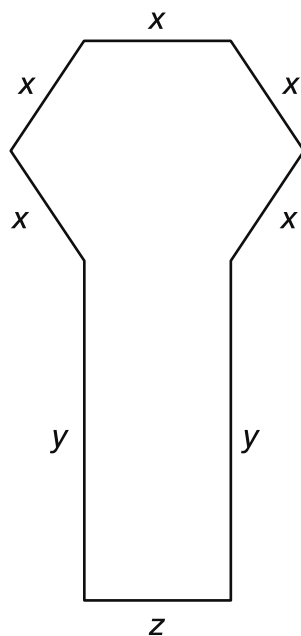
A $5x + 2y$

B $x + y + z$

C $5x + 2y + z$

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

6 年級
數學考試
第 1 卷
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.