



New York State
EDUCATION DEPARTMENT
Knowledge > Skill > Opportunity

New York State Testing Program
Grade 8
Mathematics Test

Released Questions

2023

New York State administered the Mathematics Tests in May 2023 and is making approximately 75% of the questions from these tests available for review and use.



New York State Testing Program

Grades 3–8 Mathematics

Released Questions from 2023 Exams

Background

As in past years, SED is releasing large portions of the 2023 NYS Grades 3–8 English Language Arts and Mathematics test materials for review, discussion, and use.

For 2023, included in these released materials are at least 75 percent of the test questions that appeared on the 2023 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 Next Generation 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.

One-Credit Constructed-Response Questions

One-credit constructed-response questions require students to complete a task and provide only their final answer. These one-credit questions will often require multiple steps, assessing procedural skills, as well as conceptual understanding and application. While students may show how they arrived at their final answer, only the final answer will be scored.

Two-Credit Constructed-Response Questions

Two-credit constructed-response questions require students to complete tasks and show their work. These two-credit 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 standards.

Three-Credit Constructed-Response Questions

Three-credit constructed-response questions ask students to show their work in completing two or more tasks or a more extensive problem. These three-credit response questions allow students to show their understanding of mathematical procedures, conceptual understanding, and application. Three-credit response questions may also assess student reasoning and the ability to critique the arguments of others. The scoring rubric for all constructed-response questions can be found in the grade-level Educator Guides at <http://www.nysed.gov/state-assessment/grades-3-8-ela-and-math-test-manuals>.

New York State P–12 Next Generation Learning Standards Alignment

The alignment(s) to the New York State P–12 Next Generation 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-credit and three-credit 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 it is possible to develop future tests, some content must remain secure. 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 Next Generation 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.

Non: _____



Haitian Creole Edition
Grade 8 2023
Mathematics Test
Session 1
May 2–4, 2023

**Pwogram Egzamen
Eta Nouyòk
Egzamen Matematik
Seyans 1**

8 YÈM ANE

**Sòti 2 Me pou rive
4 Me 2023**

RELEASED QUESTIONS

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Seyans 1



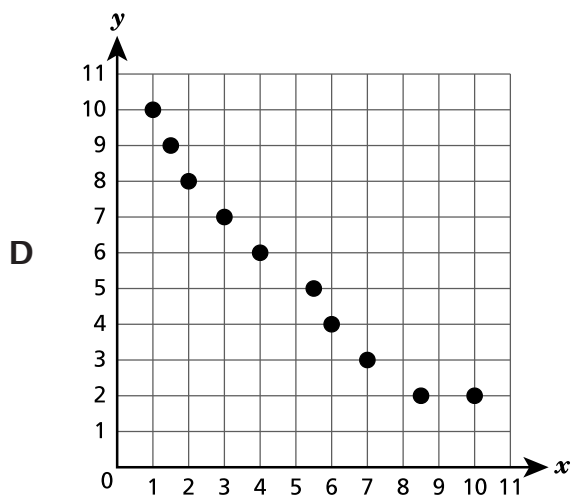
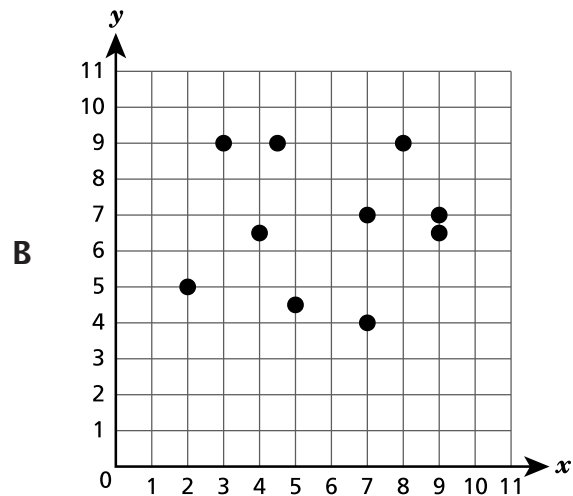
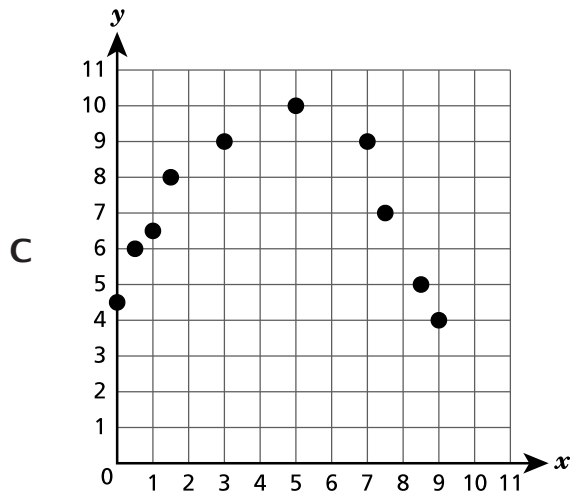
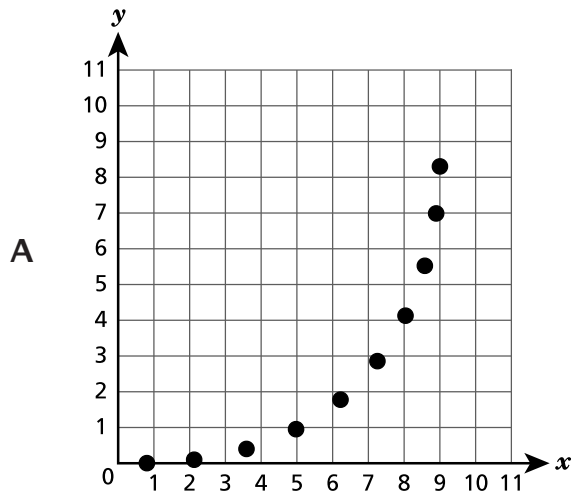
KONSÈY POU FÈ EGZAMEN AN

Men kèk sijesyon pou ede w pi byen konpoze:

- Byen li chak kesyon epi reflechi sou repons lan anvan ou fè chwa ou a.
- Nou ap ba w enstriman matematik (yon règ, yon rapòtè, epi yon kalkilatri) ak yon fèy referans pou w itilize pandan egzamen an. Se ou ki pou konnen kilè pou sèvi ak chak grenn enstriman ak fèy referans la tou. Ou dwe itilize enstriman matematik yo ak fèy referans lan nenpòt lè ou panse yo ap ede w reponn kesyon an.

2

Ki dyagram ki pi byen reprezante yon asosyasyon lineyè ant y ak x ?



KONTINYE

3

Yo trase kwadrilatè ABCD sou yon kowòdone plan. Somè A plase sou pwen $(-2, 3)$. Gen yon faktè echèl 2 ki agrandi kwadrilatè, avèk sant agrandisman an nan orijin lan, pou fòme kwadrilatè $A'B'C'D'$. Ki pwen ki reprezante anplasman somè a A' ?

A $(-4, 5)$

B $(-4, 6)$

C $(0, 5)$

D $(6, -4)$

KONTINYE

7

Ekwasyon ak tablo ki parèt anba a reprezante yon relasyon diferan ant x ak y .

FONKSYON A

FONKSYON B

$$y = \frac{5}{4}x$$

x	y
5	1,5
10	3
15	4,5

Ki deklarasyon konsènan fonksyon yo ki kòrèk?

- A Fonksyon A gen yon to chanjman ki pi gwo pase Fonksyon B a paske $1,25 > 3\bar{3}$.
- B Fonksyon B gen yon to chanjman ki pi gwo pase Fonksyon A a paske $1,25 < 3\bar{3}$.
- C Fonksyon A gen yon to chanjman ki pi gwo pase Fonksyon B a paske $1,25 > 0,3$.
- D Fonksyon B gen yon to chanjman ki pi gwo pase Fonksyon A a paske $1,25 < 0,3$.

8

Yo trase de (2) pwen sou yon plan kowòdone. Pwen A a plase nan $(-11, 8)$ epi pwèn B a plase nan $(-2, -4)$. Ki distans, an inite, ki genyen ant pwèn A a ak pwèn B a?

- A 13
- B 15
- C $\sqrt{145}$
- D $\sqrt{185}$

KONTINYE

12

Règ pou yon fonksyon x se:

miltipliye valè antre a pa 2, apre sa retire 6

Done pou valè antre fonksyon an, x , se $\{-1, 1, 3, 5\}$. Ki valè ki se youn nan valè sòti, y ?

A -2

B -1

C 2

D 4

KONTINYE

15 Ki ekspresyon ki genyen yon valè ki se $\frac{1}{16}$?

A $(2^{-4})^{-1}$

B $(2^4)^{-1}$

C $(2^8)^{-2}$

D $(2^{-8})^{-2}$

16 Yon silenn gen yon reyon 4,8 pye ak yon wotè 8,1 pye. Ki volim silenn lan nan dizyèm pye kib ki pi pre a?

A 989,4

B 586,3

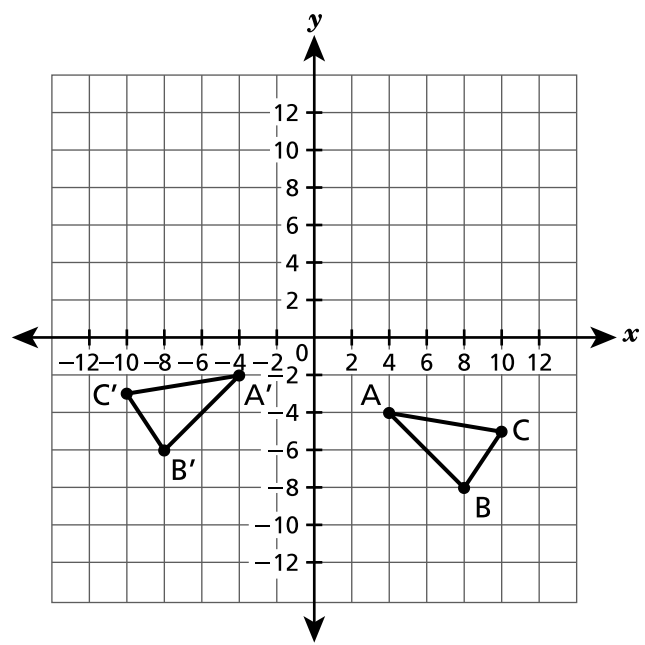
C 244,3

D 186,6

KONTINYE

19

Genyen triyang ABC ak imaj ki koresponn ak triyang lan A'B'C' sou plan kowòdone ki parèt anba a.



Ki sekans transfòmasyon ki ap reprezante triyang lan ABC sou triyang A'B'C' ?

- A yon refleksyon sou aks y - epi apre yon translasyon 2 pa anwo
- B yon refleksyon sou aks y - epi apre yon translasyon 2 pa anba
- C yon refleksyon sou aks x - epi apre yon translasyon 8 agoch
- D yon refleksyon sou aks x - epi apre yon translasyon 8 adwat

20

Ki ekwasyon ki reprezante graf yon dwat sou yon plan kowòdone ki pase nan entèseksyon- x nan $(9, 0)$ ak entèseksyon- y nan $(0, -5)$?

- A $y = -\frac{9}{5}x - 5$
- B $y = \frac{9}{5}x - 5$
- C $y = -\frac{5}{9}x - 5$
- D $y = \frac{5}{9}x - 5$

KONTINYE

22

Trent trase yon triyang ki gen yon ang enteryè ki mezire 34° . Ki mezi ang ki kapab mezi de (2) lòt ang enteryè yo nan triyang Trent la?

- A 46° ak 90°
- B 53° ak 127°
- C 66° ak 80°
- D 68° ak 68°

KONTINYE

23

Nan kad yon pwojè syans, Nathan ap obsève fason plant ki rele flè solèy yo ap grandi. Li rasanble done sou relasyon ki genyen ant wotè chak plant flè solèy, an santimèt, pandan yon peryòd trant jou ansanm ak kantite angrè, an gram, yo itilize pou chak plant. Ekwasyon pou dwat ki pi byen koresponn ak done sa yo se $y = 0.35x + 2$, kote y se wotè plant lan an santimèt epi x se kantite gram angrè yo itilize a. Sou baz modèl la, kisa pant dwat la reprezante?

- A wotè plant lan
- B kantite angrè yo itilize a
- C fason plant lan grandi an mwayèn pou chak gram angrè yo itilize
- D kantite angrè an mwayèn yo itilize pa santimèt pou plant lan grandi

24

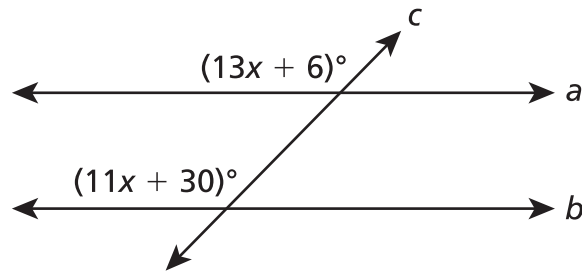
Yo trase segman dwat CD sou yon plan kowòdone. Segman dwat la reflete sou aks x - la, epi apresa sa li vire 90° nan sans zegwi yon mont toutotou orijin lan pou kreye yon segman dwat EF. Ki deklarasyon ki toujou kòrèk konsènan segman dwat la EF ?

- A Segman dwat EF koresponn ak segman dwat la CD.
- B Segman dwat EF pèpandikilè ak segman dwat la CD.
- C Segman dwat EF fè de (2) fwa longè segman dwat la CD.
- D Segman dwat EF fè mwaye longè segman dwat la CD.

KONTINYE

25

Nan imaj ki parèt anba a, dwat a ak b paralèl, epi liy c se yon transvèsal.



Ki valè x genyen?

- A 6
- B 9
- C 12
- D 18

26

Yo dekri de (2) fonksyon anba a.

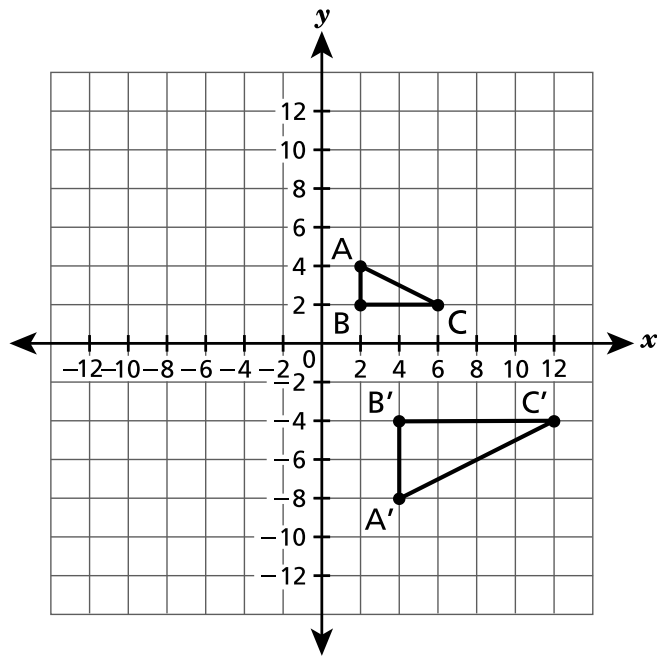
- Fonksyon A: Yon chofè taksi faktire kliyan li yo yon montan debaz ki se \$3,00 ak yon montan \$2,00 pa mil, x , pou yon fakti total, y , pou yon kliyan.
- Fonksyon B: Ekwasyon $y = 3x + 2$ reprezante relasyon ki genyen ant kantite mil, x , yon chofè taksi faktire yon montan y , pou yon kliyan.

Ki deklarasyon ki byen konpare relasyon ki genyen ant Fonksyon A a ak Fonksyon B a?

- A Fonksyon A a gen alafwa yon pi gwo to chanjman ak yon pi gwo valè inisyal.
- B Fonksyon B a gen alafwa yon pi gwo to chanjman ak yon pi gwo valè inisyal.
- C Fonksyon A a gen yon pi gwo to chanjman pase Fonksyon B a, men valè inisyal pou Fonksyon A a pi piti pase valè inisyal pou Fonksyon B a.
- D Fonksyon B a gen yon pi gwo to chanjman pase Fonksyon A a, men valè inisyal pou Fonksyon B a pi piti pase valè inisyal pou Fonksyon A a.

KONTINYE

Sou yon plan kowòdone, $\triangle ABC$ ap sibi yon sekans transfòmasyon pou li kreye $\triangle A'B'C'$.



Ki sekans transfòmasyon ki te kapab itilize pou soti nan $\triangle ABC$ ale nan $\triangle A'B'C'$?

- A** Fè yon dilatasyon pa mwayen yon faktè echèl ki 2 santre nan orijin nan epi apres a ki fè yon refleksyon sou aks x -
- B** Fè yon dilatasyon pa mwayen yon faktè echèl ki 2 santre nan orijin nan epi apres a ki fè yon refleksyon sou aks y -
- C** Fè yon agrandisman pa mwayen yon faktè echèl ki $\frac{1}{2}$ santre nan orijin nan epi apres a ki fè yon refleksyon sou aks x -
- D** Fè yon dilatasyon pa mwayen yon faktè echèl ki $\frac{1}{2}$ santre nan orijin nan epi apres a ki fè yon refleksyon sou aks y -

KONTINYE

8yèm ane

2023

Egzamen Matematik

Seyans 1

Sòti 2 Me pou rive 4 Me 2023

Grade 8

2023

Mathematics Test

Session 1

May 2–4, 2023

Non: _____



Haitian Creole Edition
Grade 8 2023
Mathematics Test
Session 2
May 2–4, 2023

**Pwogram Egzamen
Eta Nouyòk
Egzamen Matematik
Seyans 2**

8 YÈM ANE

**Sòti 2 Me pou rive
4 Me 2023**

RELEASED QUESTIONS

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Seyans 2

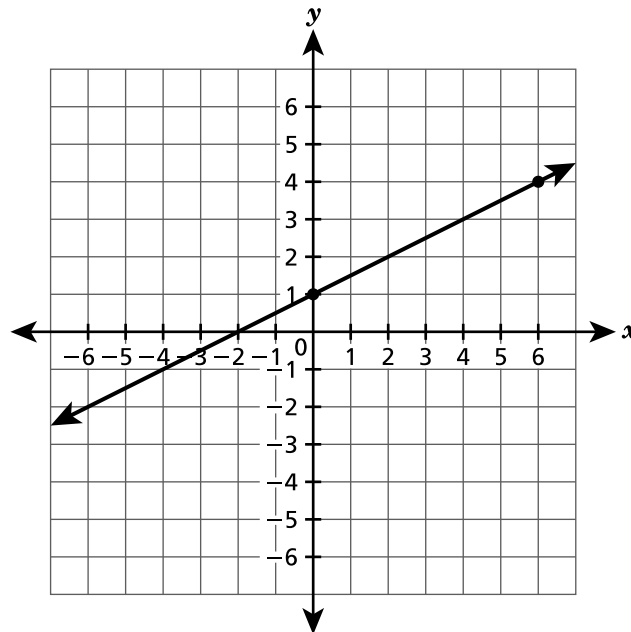


KONSÈY POU FÈ EGZAMEN AN

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- Byen li chak kesyon epi reflechi sou repons lan anvan ou chwazi oswa ekri repons ou an.
- Nou ap ba w enstriman matematik (yon règ, yon rapòtè, ak yon kalkilatri) ak yon fèy referans pou w itilize pandan egzamen an. Se ou ki pou konnen kilè pou sèvi ak chak grenn enstriman ak fèy referans la tou. Ou dwe itilize enstriman matematik yo ak fèy referans lan nenpòt lè ou panse yo ap ede w reponn kesyon an.
- Asire w ou montre travay ou a lè yo mande ou sa.

Yo montre graf yon dwat nan plan kowòdone ki anba a.



Ki ekwasyon ki reprezante graf dwat la?

- A $y = \frac{1}{2}x + 1$
- B $y = \frac{1}{2}x - 2$
- C $y = 2x + 1$
- D $y = 2x - 2$

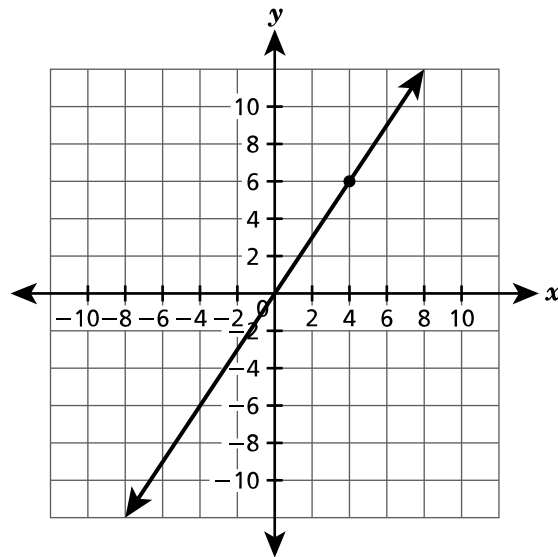
KONTINYE

Tablo ak graf nou montre anba a reprezante Fonksyon A ak Fonksyon B.

FONKSYON A

x	y
-6	-12
-2	-4
0	0
2	4

FONKSYON B



Ki deklarasyon konsènan Fonksyon A ak Fonksyon B ki kòrèk?

- A To varyasyon pou Fonksyon A a pi piti pase to chanjman pou Fonksyon B a.
- B To varyasyon pou Fonksyon A a pi gwo pase to chanjman pou Fonksyon B a.
- C To varyasyon pou Fonksyon A egal ak to chanjman pou Fonksyon B a paske grafik dwat la pou chak fonksyon yo lineyè.
- D To varyasyon pou Fonksyon A a egal ak to chanjman pou Fonksyon B a paske grafik dwat la pou chak fonksyon yo pase nan pwen orijin nan.

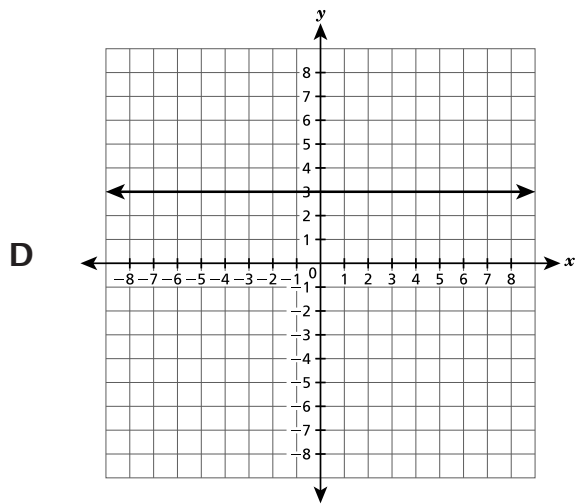
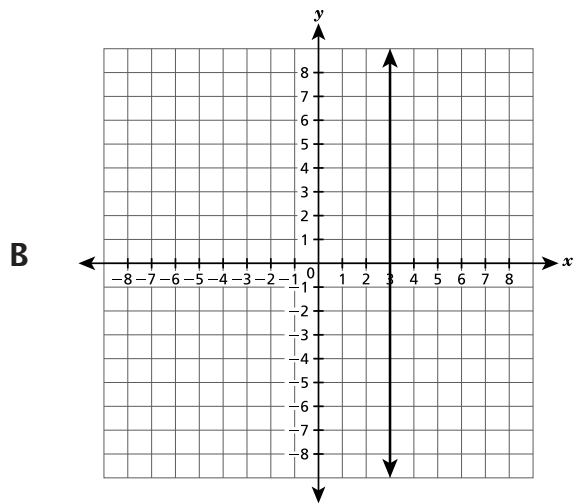
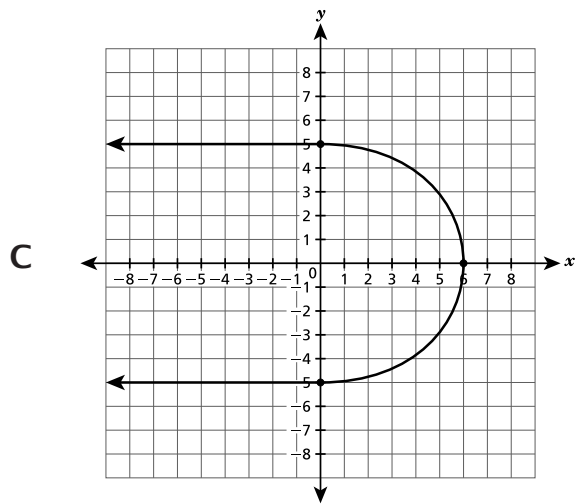
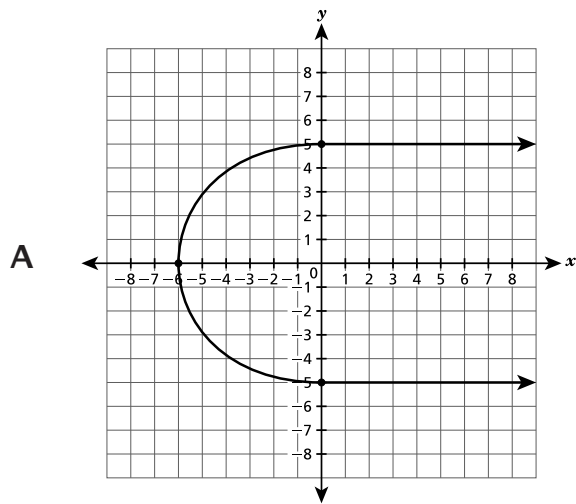
Ki deklarasyon konsènan valè $a\sqrt{50}$ ki kòrèk?

- A Li irasyonèl paske ekivalan desimal la ap repete kanmèm.
- B Li rasyonèl paske ekivalan desimal la ap fini kanmèm.
- C Li rasyonèl paske valè a antanke yon desimal se ekivalan yon fraksyon.
- D Li irasyonèl paske ekivalan desimal la pa repete epi li pa fini.

KONTINYE

36

Ki graf ki reprezante y kòm yon fonksyon x ?



37

Yon vesò ki gen fòm silenn gen yon wotè 56 santimèt ak yon dyamèt 22 santimèt. Ki volim bwat la, an santimèt kib, an fonksyon π ?

- A 1.232π
- B 3.388π
- C 6.776π
- D 27.104π

KONTINYE

38

Yo reprezante kwadrilatè ABCD sou yon plan kowòdone, avèk pwen C ki plase nan $(-4,3)$. Kwadrilatè ABCD reflete sou -aks y pou kreye imaj $A'B'C'D'$. Aprè refleksyon an, ki kowòdone pwen C' ?

- A $(4,3)$
- B $(4, -3)$
- C $(-4,3)$
- D $(-4, -3)$

KONTINYE

39

Kesyon sa a vo 1 kredi.

Ki solisyon ou jwenn pou x nan ekwasyon $x^3 = 125$?

Repons _____

KONTINYE

40

Kesyon sa a vo 1 kredi.

Triyang DEF se yon triyang rektang ki gen yon ang dwat nan somè li F. Kote \overline{DF} gen yon longè ki se 9 pous, epi kote \overline{FE} gen yon longè ki se 12 pous. Ki longè an pous kote \overline{DE} a ye?

Repons _____ pous

KONTINYE

41

Kesyon sa a vo 1 kredi.

Yo montre yon ekwasyon anba a.

$$-8 - 5x = 20$$

Ki valè x genyen?

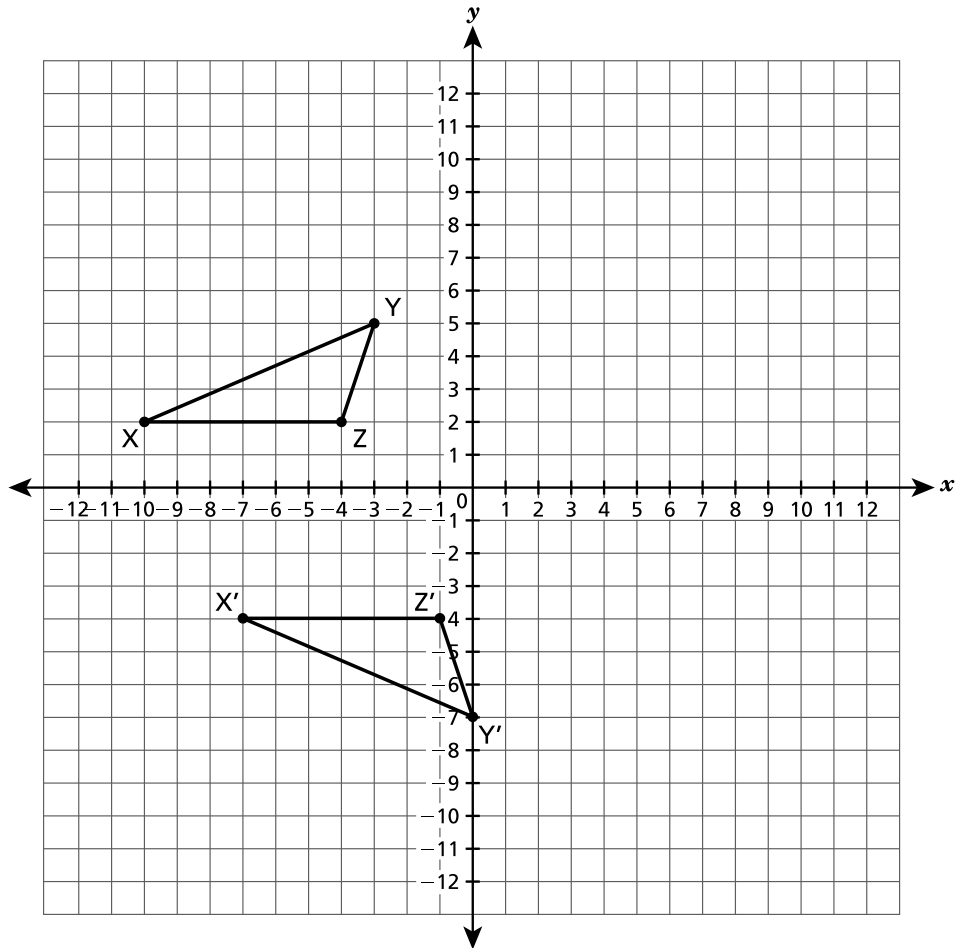
Repons _____

KONTINYE

42

Kesyon sa a vo 2 kredi.

Yo reprezante triyang XYZ ak triyang X'Y'Z' ki kongriyan avèk li sou plan kowòdone ki anba a.



Dekri yon sekans transfòmasyon ki fè triyang XYZ la koresponn ak triyang X'Y'Z'.

Eksplike repons ou an.

KONTINYE

43**Kesyon sa a vo 2 kredi.**Ki valè x ki fè ekwasyon yo montre anba a kòrèk?

$$24x + 33 = 3(5x + 21) - 9$$

Montre kijan ou jwenn repons lan.**Repons** $x =$ _____**KONTINYE**

44

Kesyon sa a vo 2 kredi.

Kote triyang RST a mezire 8 santimèt, 10 santimèt, ak 13 santimèt longè. Èske triyang RST a se yon triyang rektang? Tanpri, di sa ou konnen sou teyorèm Pitagò a nan repons ou an.

Eksplike kijan ou fè jwenn repons lan.

KONTINYE

45

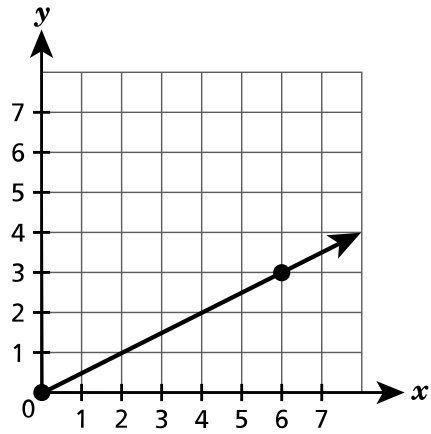
Kesyon sa a vo 2 kredi.

Fonksyon A ak Fonksyon B parèt anba a.

FONKSYON A

x	y
-5	-30
-3	-18
2	12
4	24

FONKSYON B



Ki fonksyon ki gen pi gran to varyasyon? Tanpri, bay to varyasyon pou chak fonksyon yo nan repons ou an.

Eksplike kijan ou fè jwenn repons lan.

KONTINYE

46

Kesyon sa a vo 2 kredi.

Ki sifas siperyè yon tranpolin gen fòm yon sèk avèk yon dyamèt 12 pye. Ki sipèfisi sifas siperyè tranpolin nan, ki gen fòm yon sèk, an pye kare?

Awondi repons ou an pou li rive nan nonb antye ki pi pre a.

Montre kijan ou jwenn repons lan.

Repons _____ pye kare

KONTINYE

47

Kesyon sa a vo 2 kredi.

Yon elèv fè konnen ekspresyon $\frac{5^7}{5^3}$ ak $5^6 \times 5^{-2}$ ekivalan. Èske elèv la byen di? Tanpri, bay repons sou sa ou konnen sou pwopriyete ekspozan yo ak valè chak ekspresyon yo nan fòm ki pi senp lan.

Eksplike kijan ou fè jwenn repons lan.

KONTINYE

Kesyon sa a vo 3 kredi.

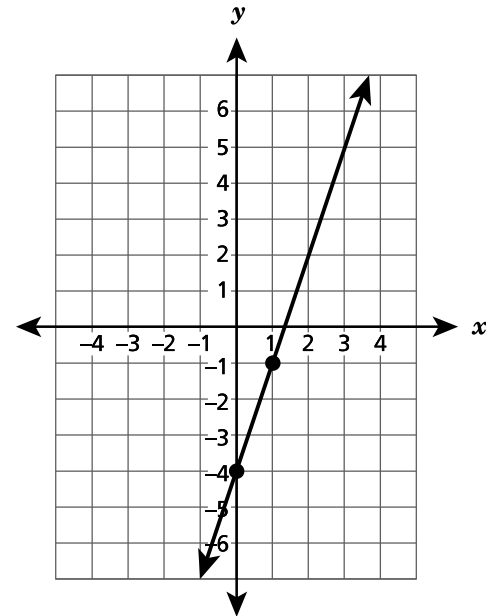
Yo reprezante twa (3) fonksyon diferan pa mwayen ekwasyon, tablo, ak graf ki parèt anba a.

FONKSYON A

$$y = 2x + 3$$

FONKSYON B

x	y
-1	1
0	0
1	1
2	4

FONKSYON C

Detèmine si chak fonksyon sa yo lineyè oswa non-lineyè. Tanpri, di sa ou konnen sou pwopriyete tout twa (3) fonksyon sa yo nan repons ou an.

Eksplike repons ou an.

8yèm ane

2023

Egzamen Matematik

Seyans 2

Sòti 2 Me pou rive 4 Me 2023

Grade 8

2023

Mathematics Test

Session 2

May 2–4, 2023

THE STATE EDUCATION DEPARTMENT
THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234
2023 Mathematics Tests Map to the Standards
Grade 8 Released Questions

Question	Type	Key	Points	Standard	Cluster	Secondary Standard(s)	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									
2	Multiple Choice	D	1	NGLS.Math.Content.NY-8.SP.1	Statistics and Probability		0.6869		
3	Multiple Choice	B	1	NGLS.Math.Content.NY-8.G.3	Geometry		0.6636		
7	Multiple Choice	C	1	NGLS.Math.Content.NY-8.EE.5	Expressions and Equations	NGLS.Math.Content.NY-8.F.2	0.4591		
8	Multiple Choice	B	1	NGLS.Math.Content.NY-8.G.8	Geometry		0.3865		
12	Multiple Choice	D	1	NGLS.Math.Content.NY-8.F.1	Functions		0.5105		
15	Multiple Choice	B	1	NGLS.Math.Content.NY-8.EE.1	Expressions and Equations		0.4848		
16	Multiple Choice	B	1	NGLS.Math.Content.NY-8.G.9	Geometry		0.4694		
19	Multiple Choice	A	1	NGLS.Math.Content.NY-8.G.2	Geometry		0.5691		
20	Multiple Choice	D	1	NGLS.Math.Content.NY-8.EE.6	Expressions and Equations		0.3042		
22	Multiple Choice	C	1	NGLS.Math.Content.NY-7.G.2	Geometry	NGLS.Math.Content.NY-8.G.5	0.5474		
23	Multiple Choice	C	1	NGLS.Math.Content.NY-8.SP.3	Statistics and Probability		0.5376		
24	Multiple Choice	A	1	NGLS.Math.Content.NY-8.G.1a	Geometry		0.5290		
25	Multiple Choice	C	1	NGLS.Math.Content.NY-8.G.5	Geometry		0.5441		
26	Multiple Choice	D	1	NGLS.Math.Content.NY-8.F.2	Functions		0.5034		
29	Multiple Choice	A	1	NGLS.Math.Content.NY-8.G.4	Geometry		0.7040		
Session 2									
33	Multiple Choice	A	1	NGLS.Math.Content.NY-8.EE.6	Expressions and Equations		0.6603		
34	Multiple Choice	B	1	NGLS.Math.Content.NY-8.EE.5	Expressions and Equations	NGLS.Math.Content.NY-8.F.2	0.4269		
35	Multiple Choice	D	1	NGLS.Math.Content.NY-8.NS.1	The Number System		0.4229		
36	Multiple Choice	D	1	NGLS.Math.Content.NY-8.F.1	Functions		0.4746		
37	Multiple Choice	C	1	NGLS.Math.Content.NY-8.G.9	Geometry		0.4131		
38	Multiple Choice	A	1	NGLS.Math.Content.NY-8.G.3	Geometry		0.4651		
39	Constructed Response		1	NGLS.Math.Content.NY-8.EE.2	Expressions and Equations			0.5689	0.5689
40	Constructed Response		1	NGLS.Math.Content.NY-8.G.7	Geometry			0.2832	0.2832
41	Constructed Response		1	NGLS.Math.Content.NY-8.EE.7b	Expressions and Equations			0.4512	0.4512
42	Constructed Response		2	NGLS.Math.Content.NY-8.G.2	Geometry			0.3559	0.1780
43	Constructed Response		2	NGLS.Math.Content.NY-8.EE.7b	Expressions and Equations			0.3241	0.1621
44	Constructed Response		2	NGLS.Math.Content.NY-8.G.6	Geometry			0.2981	0.1491
45	Constructed Response		2	NGLS.Math.Content.NY-8.F.4	Functions			0.3363	0.1682
46	Constructed Response		2	NGLS.Math.Content.NY-7.G.4	Geometry			0.2940	0.1470
47	Constructed Response		2	NGLS.Math.Content.NY-8.EE.1	Expressions and Equations			0.2840	0.1420
48	Constructed Response		3	NGLS.Math.Content.NY-8.F.3	Functions			0.2905	0.0968

*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.