



New York State  
**EDUCATION DEPARTMENT**  
Knowledge > Skill > Opportunity

**New York State Testing Program  
Grade 8  
Mathematics Test**

**Released Questions**

**2022**

New York State administered the Mathematics Tests in May 2022 and is now 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 2022 Exams**

### ***Background***

As in past years, SED is releasing large portions of the 2022 NYS Grades 3-8 English Language Arts and Mathematics test materials for review, discussion, and use.

For 2022, included in these released materials are at least 75 percent of the test questions that appeared on the 2022 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 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 <http://www.nysed.gov/state-assessment/grades-3-8-ela-and-math-test-manuals>.

## **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 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 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 2022*  
*Mathematics Test*  
*Session 1*  
*April 26–28, 2022*

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

**Ane 8**

**26–28 Avril 2022**

**RELEASED QUESTIONS**

Developed and published under contract with the New York State Education Department by Questar Assessment Inc., 5550 Upper 147th Street West, Minneapolis, MN 55124. Copyright © 2022 by the New York State Education Department.

## Ane 8 Fèy Referans Matematik

### KONVÈSYON

1 pous = 2,54 santimèt

1 mètr = 39,37 pous

1 mil = 5.280 pye

1 mil = 1.760 yad

1 mil = 1,609 kilomèt

1 kilomèt = 0,62 mil

1 liv = 16 ons

1 liv = 0,454 kilogram

1 kilogram = 2,2 liv

1 tòn = 2.000 liv

1 tas = 8 ons likid

1 pent = 2 tas

1 ka = 2 pent

1 galon = 4 ka

1 galon = 3,785 lit

1 lit = 0,264 galon

1 lit = 1.000 santimèt kib

---

### FÒMIL

Triyang

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

Paralelogram

$$A = bh$$

Sèk

$$A = \pi r^2$$

Sèk

$$C = \pi d \text{ oswa } C = 2\pi r$$

Prism Jeneral

$$V = Bh$$

Silenn

$$V = \pi r^2 h$$

Esfè

$$V = \frac{4}{3}\pi r^3$$

Kòn

$$V = \frac{1}{3}\pi r^2 h$$

Teyorèm Pitagò

$$a^2 + b^2 = c^2$$

---

# Seyans 1



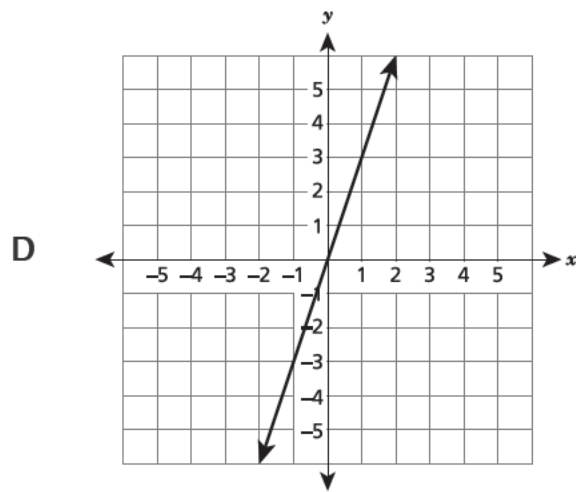
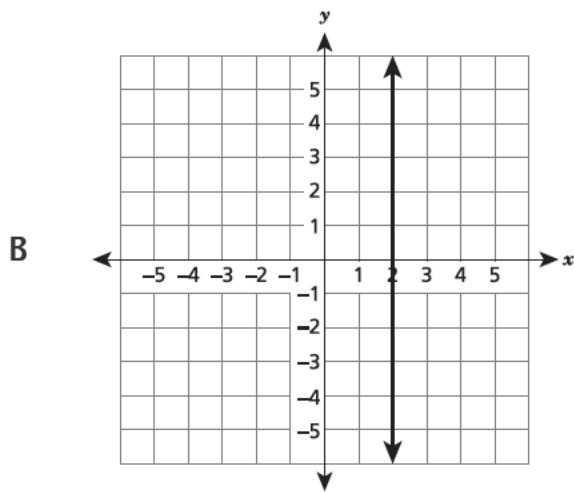
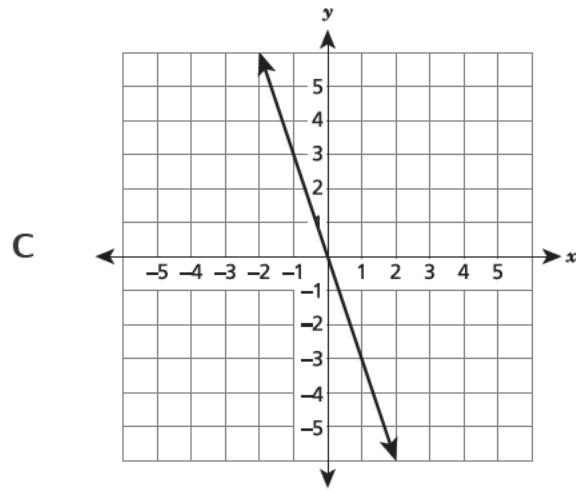
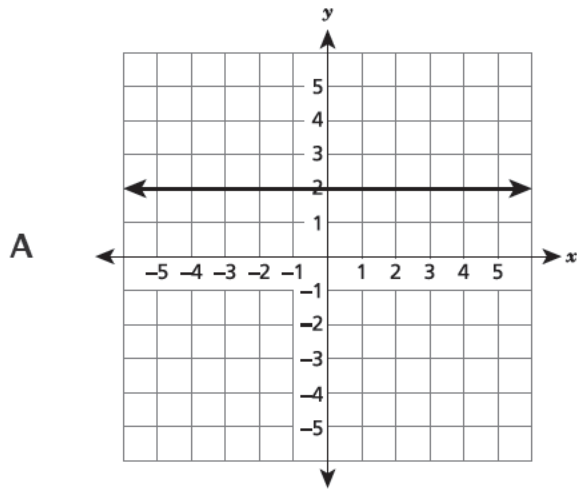
## KONSÈY POU PRAN EGZAMEN AN

Men kèk sijesyon pou ede ou bay pi bon rannman:

- Li chak kesyon avèk atansyon epi reflechi sou chak repons anvan ou fè chwa ou.
- Yo ba w enstriman matematik (yon règ, yon rapòtè ak yon kalkilatri) epi yon gen fèy referans ladan pou sèvi pandan egzamen an. Se ou ki pou konnen kilè pou sèvi ak chak grenn enstriman ak fèy referans la tou. Ou dwe sèvi ak enstriman matematik yo avèk fèy referans la tou nenpòt ki lè w panse l ap ede w reponn yon kesyon.

1

Ki ekspresyon ki reprezante yon fonksyon k ap ogmante?



**KONTINYE**



**2**

Ki solisyon ekwasyon ki anba la a?

$$2,5(x + 5) = 7,5x - 0,5$$

- A  $x = 2,6$
- B  $x = 1,1$
- C  $x = -2,6$
- D  $x = -1,1$

**3**

Gen de bwat sereyal nan fòm pris rektangilè sou yon etajè. Gen dimansyon chak bwat sereyal pi ba a.

- Bwat A gen yon wotè 25 santimèt, yon longè 20 santimèt, ak yon lajè 9 santimèt.
- Bwat B gen yon wotè 25 santimèt, yon longè 19 santimèt, ak yon lajè 6 santimèt.

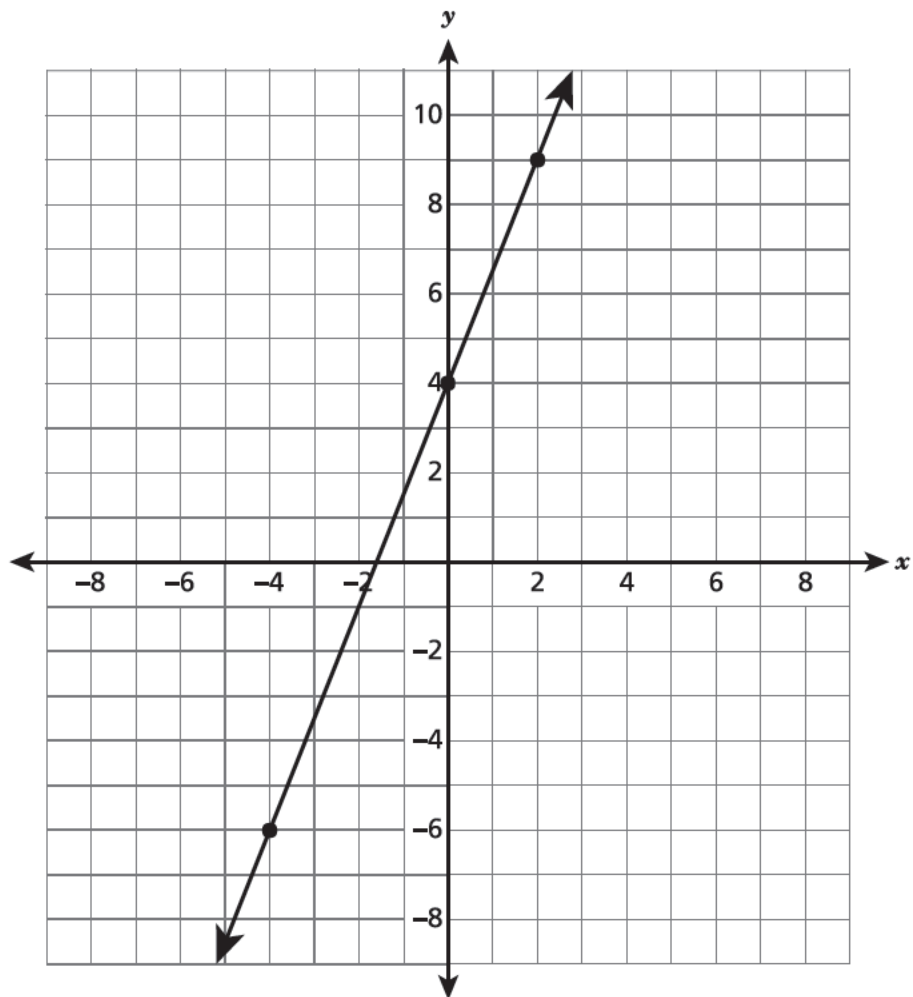
Ki diferans an volim, an santimèt kib, ant volim de bwat sereyal yo ye?

- A 1.650
- B 3.900
- C 4.500
- D 7.350

***KONTINYE***

4

Ki ekwasyon ki reprezante dwat yo endike sou plan kowòdone ki anba la a?

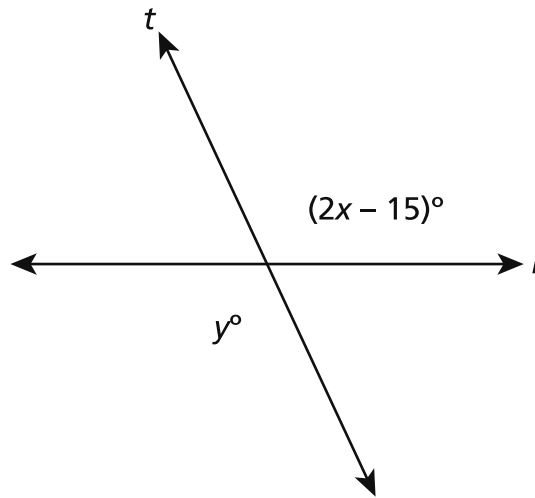


- A  $y = \frac{2}{5}x + 4$
- B  $y = \frac{2}{3}x + 4$
- C  $y = \frac{3}{2}x + 4$
- D  $y = \frac{5}{2}x + 4$

**KONTINYE**

5

Gen de dwat ki entèsekte,  $l$  ak  $t$ , nan dyagram ki anba la a.



Si  $y = 115$ , kisa ki valè  $x$ ?

- A 40
- B 50
- C 65
- D 115

6

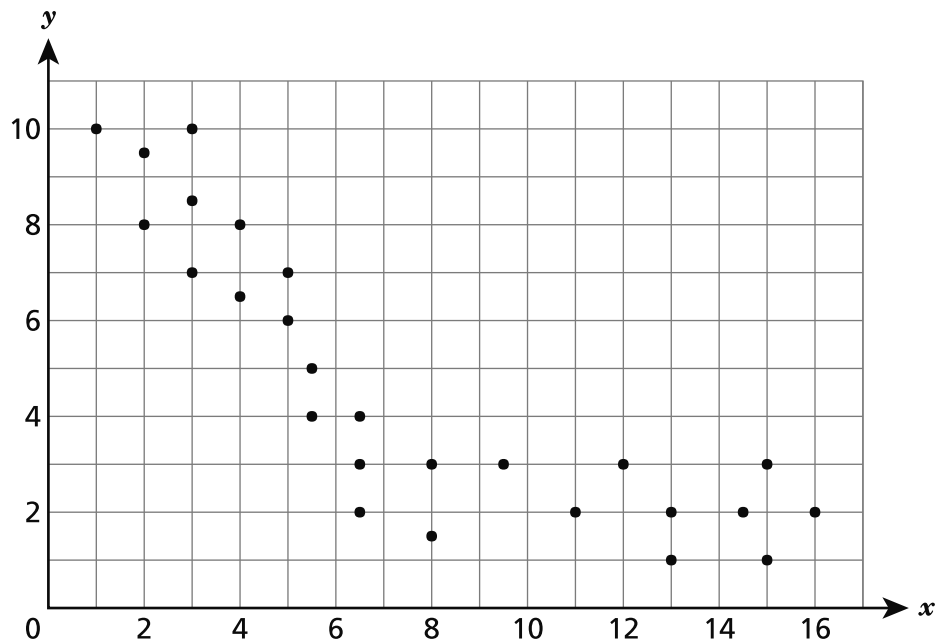
Triyang P sibi yon sekans transfòmasyon ki bay triyang Q kòm rezilta. Ki sekans transfòmasyon yo te kapab itilize pou montre triyang Q similè men li pa kongriyan ak triyang P?

- A yon refleksyon ki gen yon translasyon apre li
- B yon wotasyon ki gen yon refleksyon apre li
- C yon refleksyon ki gen yon wotasyon apre li
- D yon translasyon ki gen yon dilatasyon apre li

**KONTINYE**

7

Sa a se yon dyagram dispèsyon ki anba la a.



Ki deklarasyon ki eksplike **pi byen** poukisa done sa yo kapab oswa pa kapab reprezante ak yon dwat meyè ajisteman?

- A Yon dwat pa t ap apwopriye paske gen yon asosyasyon negatif.
- B Yon dwat pa t ap apwopriye paske pwen yo suiv yon modèl non-lineyè.
- C Yon dwat t ap apwopriye paske gen yon asosyasyon pozitif.
- D Yon dwat t ap apwopriye paske pwen yo suiv yon modèl non-lineyè.

8

Si genyen youn, kisa solisyon ekwasyon  $3(x - 2) + 4 = 3x + 6$  ye?

- A  $x = 0$
- B  $x = 8$
- C Pa gen solisyon.
- D Gen yon kantite solisyon enfini.

**KONTINYE**

14 Ki ekspresyon ki ekivalan ak  $(15^3)(15^{-7})$  ?

A  $15^{-21}$

B  $-15^4$

C  $\frac{1}{15^4}$

D  $\frac{1}{15^{-4}}$

15 Alex ouvri yon kont depay ak yon premye depo \$50. Chak mwa, li depoze menm kantite lajan an. Li itilize ekwasyon  $t = 50 + 25m$  pou detèmine  $t$ , montan total lajan li genyen nan kont depay li a nan  $m$  mwa. Kisa to inite a ye, epi ki siyifikasyon to inite a?

A 25; kantite lajan Alex depoze nan kont li chak mwa

B 50; kantite lajan Alex depoze nan kont li chak mwa

C 25; kantite lajan Alex depoze nan kont li okòmansman

D 50; kantite lajan Alex depoze nan kont li okòmansman

16 Ki solisyon ekwasyon ki anba la a?

$$-\frac{1}{3}(6y + 6) + 21 = 3y$$

A  $y = \frac{19}{5}$

B  $y = \frac{27}{5}$

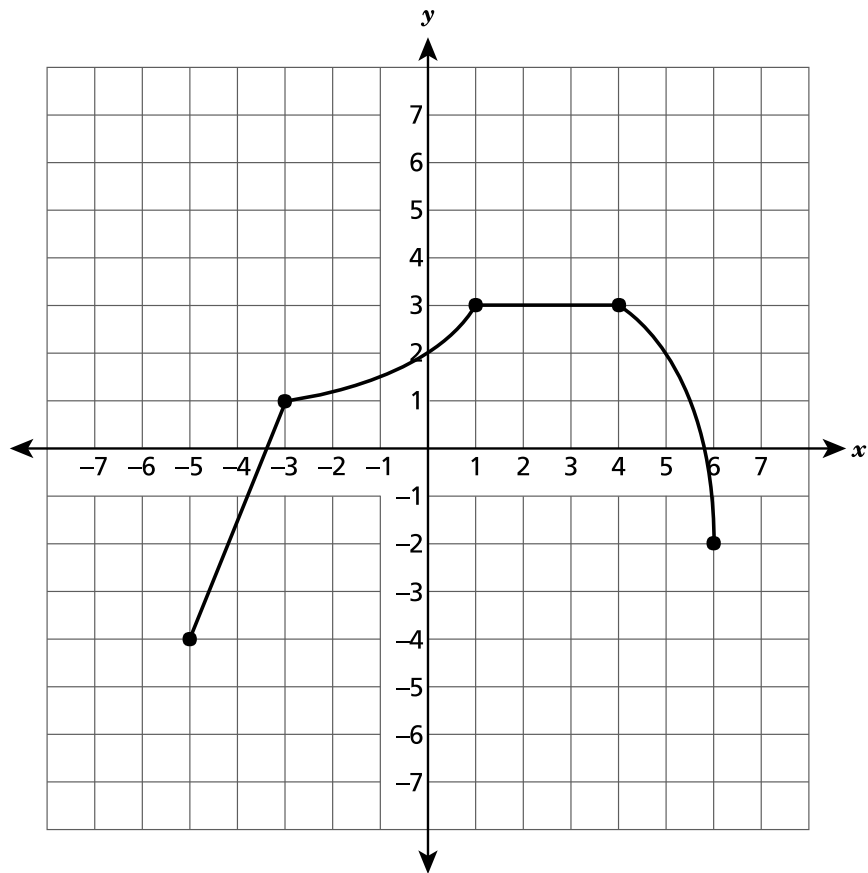
C  $y = -\frac{9}{5}$

D  $y = -\frac{23}{5}$

**KONTINYE**

19

Yo endike graf yon fonksyon nan plan kowòdone ki anba la a.



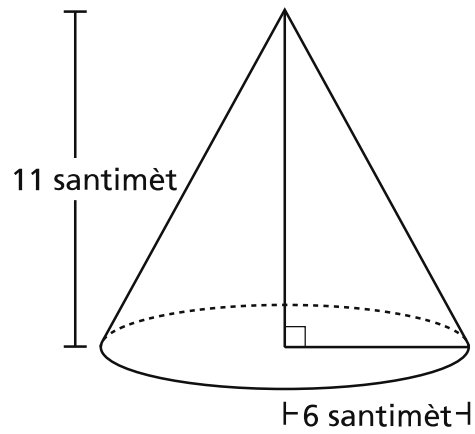
Ant ki de valè  $x$  fonksyon an non-lineyè epi ap ogmante?

- A  $-5$  ak  $-3$
- B  $-3$  ak  $1$
- C  $1$  ak  $4$
- D  $4$  ak  $6$

**KONTINYE**

23

Sa se dimansyon yon kòn nan imaj ki anba la a.



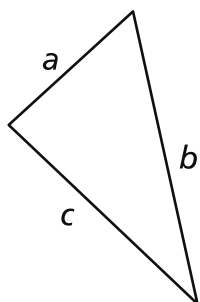
Ki volim apwoksimatif kòn nan ye an santimèt kib?

- A 138
- B 415
- C 622
- D 1.244

**KONTINYE**

24

Sa se yon triyang ak longè kote  $a$ ,  $b$ , ak  $c$  ki anba la a.



Ki deklarasyon sou longè kote ki dwe vrè?

A  $a + b > c$

B  $b + c < a$

C  $a + b < c$

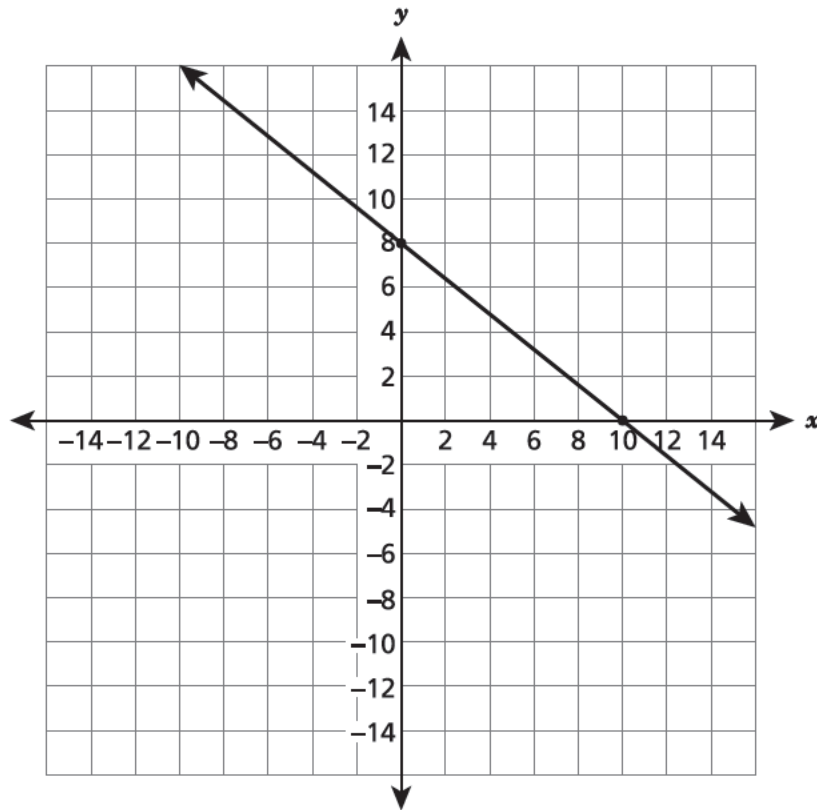
D  $a + c < b$

**KONTINYE**



25

Nou montre yon dwat ki trase sou plan kowòdone ki anba la a.



Kisa ki ekwasyon dwat la?

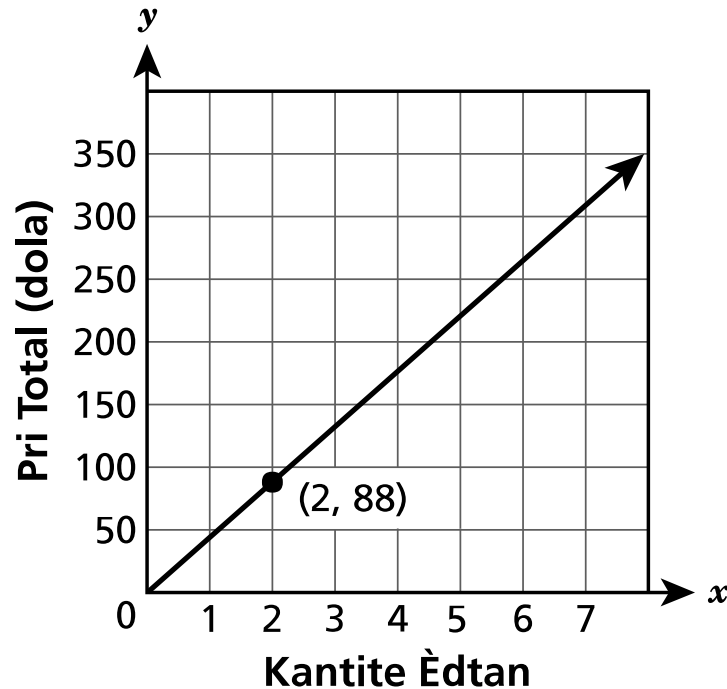
- A  $y = -\frac{4}{5}x + 8$
- B  $y = \frac{4}{5}x + 10$
- C  $y = -\frac{5}{4}x + 8$
- D  $y = \frac{5}{4}x + 10$

**KONTINYE**

Gen de mekanisyen k ap travay sou machin. Pou chak mekanisyen, relasyon ant  $x$ , kantite èdtan travay, ak  $y$ , kantite pri total la, an dola, dekri pi ba a.

- Ekwasyon an  $y = 36x$  reprezante pri total Mekanisyen A mande pou kantite èdtan li travay yo.
- Graf ki anba la a reprezante pri total Mekanisyen B mande pou kantite èdtan li travay yo.

### MEKANISYEN B CHAJE



Selon enfòmasyon yo, ki deklarasyon ki vrè?

- A Mekanisyen A chaje \$8,00 plis pa èdtan pase Mekanisyen B.
- B Mekanisyen B chaje \$8,00 plis pa èdtan pase Mekanisyen A.
- C Mekanisyen A chaje \$52,00 plis pa èdtan pase Mekanisyen B.
- D Mekanisyen B chaje \$52,00 plis pa èdtan pase Mekanisyen A.

**KONTINYE**

---

**Ane 8**  
**2022**  
**Egzamen Matematik**  
**Seyans 1**  
26–28 Avril 2022

**Grade 8**  
**2022**  
**Mathematics Test**  
**Session 1**  
April 26–28, 2022

Non: \_\_\_\_\_



*Haitian Creole Edition*  
*Grade 8 2022*  
*Mathematics Test*  
*Session 2*  
*April 26–28, 2022*

---

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

**Ane 8**

**26–28 Avril 2022**

**RELEASED QUESTIONS**

Developed and published under contract with the New York State Education Department by Questar Assessment Inc., 5550 Upper 147th Street West, Minneapolis, MN 55124. Copyright © 2022 by the New York State Education Department.

## Ane 8 Fèy Referans Matematik

### KONVÈSYON

1 pous = 2,54 santimèt

1 mètr = 39,37 pous

1 mil = 5.280 pye

1 mil = 1.760 yad

1 mil = 1,609 kilomèt

1 kilomèt = 0,62 mil

1 liv = 16 ons

1 liv = 0,454 kilogram

1 kilogram = 2,2 liv

1 tòn = 2.000 liv

1 tas = 8 ons likid

1 pent = 2 tas

1 ka = 2 pent

1 galon = 4 ka

1 galon = 3,785 lit

1 lit = 0,264 galon

1 lit = 1.000 santimèt kib

---

### FÒMIL

Triyang

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

Paralelogram

$$A = bh$$

Sèk

$$A = \pi r^2$$

Sèk

$$C = \pi d \text{ oswa } C = 2\pi r$$

Prism Jeneral

$$V = Bh$$

Silenn

$$V = \pi r^2 h$$

Esfè

$$V = \frac{4}{3}\pi r^3$$

Kòn

$$V = \frac{1}{3}\pi r^2 h$$

Teyorèm Pitagò

$$a^2 + b^2 = c^2$$

---

# Seyans 2



## KONSÈY POU PRAN EGZAMEN AN

Men kèk sijesyon pou ede ou bay pi bon rannman:

- Li chak kesyon avèk atansyon epi reflechi sou chak repons anvan ou fè chwa ou oswa ekri repons ou.
- Yo ba w enstriman matematik (yon règ, yon rapòtè ak yon kalkilatri) epi yon gen fèy referans ladan pou sèvi pandan egzamen an. Se ou ki pou konnen kilè pou sèvi ak chak grenn enstriman ak fèy referans la tou. Ou dwe sèvi ak enstriman matematik yo avèk fèy referans la tou nenpòt ki lè w panse l ap ede w reponn yon kesyon.
- Pa bliye montre kijan w fè jwenn repons lan lè yo mande ou sa.

**34** Cory bwè dlo nan yon bidon pandan l ap monte bekàn. Mwayèn kantite dlo, an ons, nan bidon dlo li a ka reprezante ak ekwasyon  $y = -8x + 32$ , kote  $y$  se kantite dlo ki rete aprè  $x$  èdtan. Selon ekwasyon an, konbyen ons dlo k ap rete nan bidon an aprè Cory monte bekàn pandan  $2\frac{1}{2}$  èdtan?

- A 8
- B 12
- C 20
- D 32

**35** Ki ekspresyon ki ekivalan ak  $4^{-5} \times 4^8$  ?

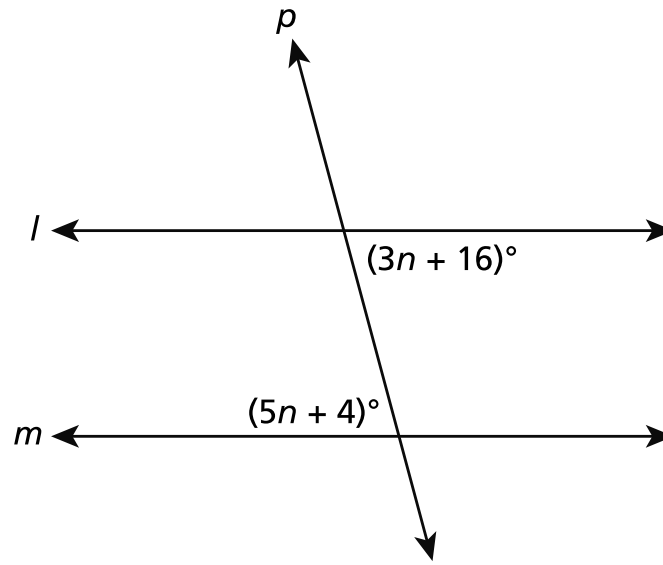
- A  $\frac{4^{-2}}{4^{-1}}$
- B  $(4^3)^{-1}$
- C  $\frac{4^2}{4^{-1}}$
- D  $(4^{-1})^3$

**KONTINYE**



36

Dwat  $l$  ak  $m$  paralèl epi yo entèsekte transvèsal  $p$ , jan li parèt nan dyagram ki anba la a.

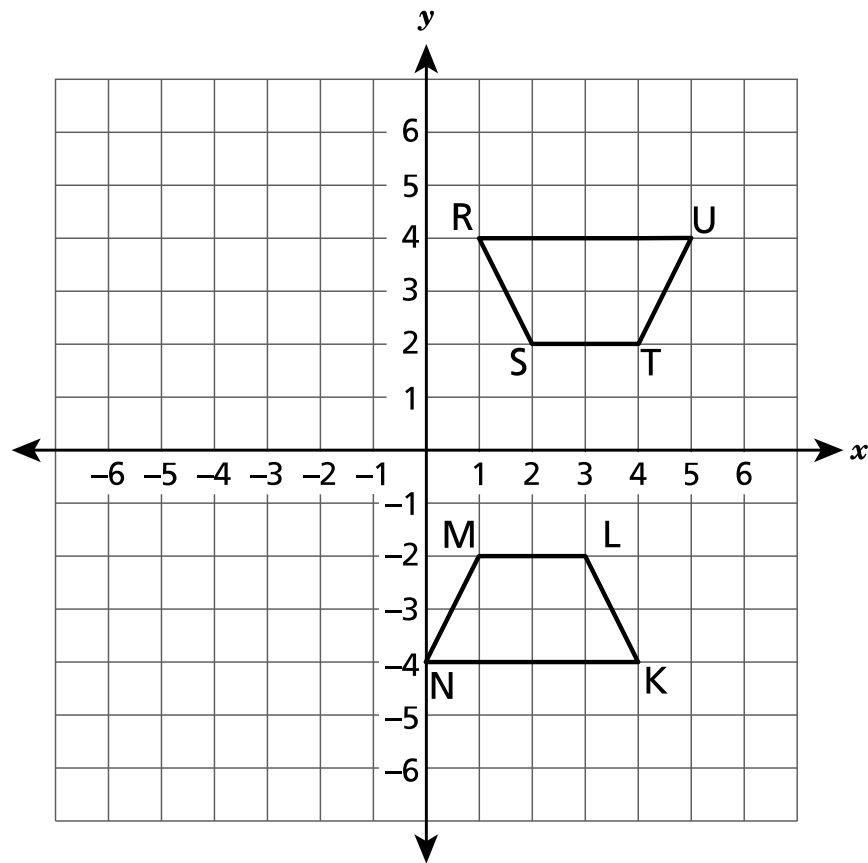


Kisa ki valè  $n$ ?

- A 6
- B 10
- C 20
- D 24

**KONTINYE**

Trapèz RSTU ak trapèz NMLK ki sou kowòdone plan an kongriyan.



Ki sekans transfòmasyon ki pral trase transfòmasyon trapèz RSTU sou trapèz NMLK ?

- A yon refleksyon sou aks  $y$ , apresa yon translasyon 1 inite adwat
- B yon refleksyon sou aks  $x$ , apresa yon translasyon 1 inite agoch
- C yon refleksyon sou aks  $y$ , apresa yon translasyon 1 inite anba
- D yon refleksyon sou aks  $x$ , apresa yon translasyon 1 inite anwo

**KONTINYE**

**38**

Ki ansanm pè òdone ki reprezante yon fonksyon?

- A  $\{(-20, 30), (-40, 0), (-40, 50)\}$
- B  $\{(-30, 0), (-30, 20), (-30, 50)\}$
- C  $\{(-40, 0), (20, -30), (60, -50)\}$
- D  $\{(-50, 0), (20, -30), (-50, 60)\}$

**39**

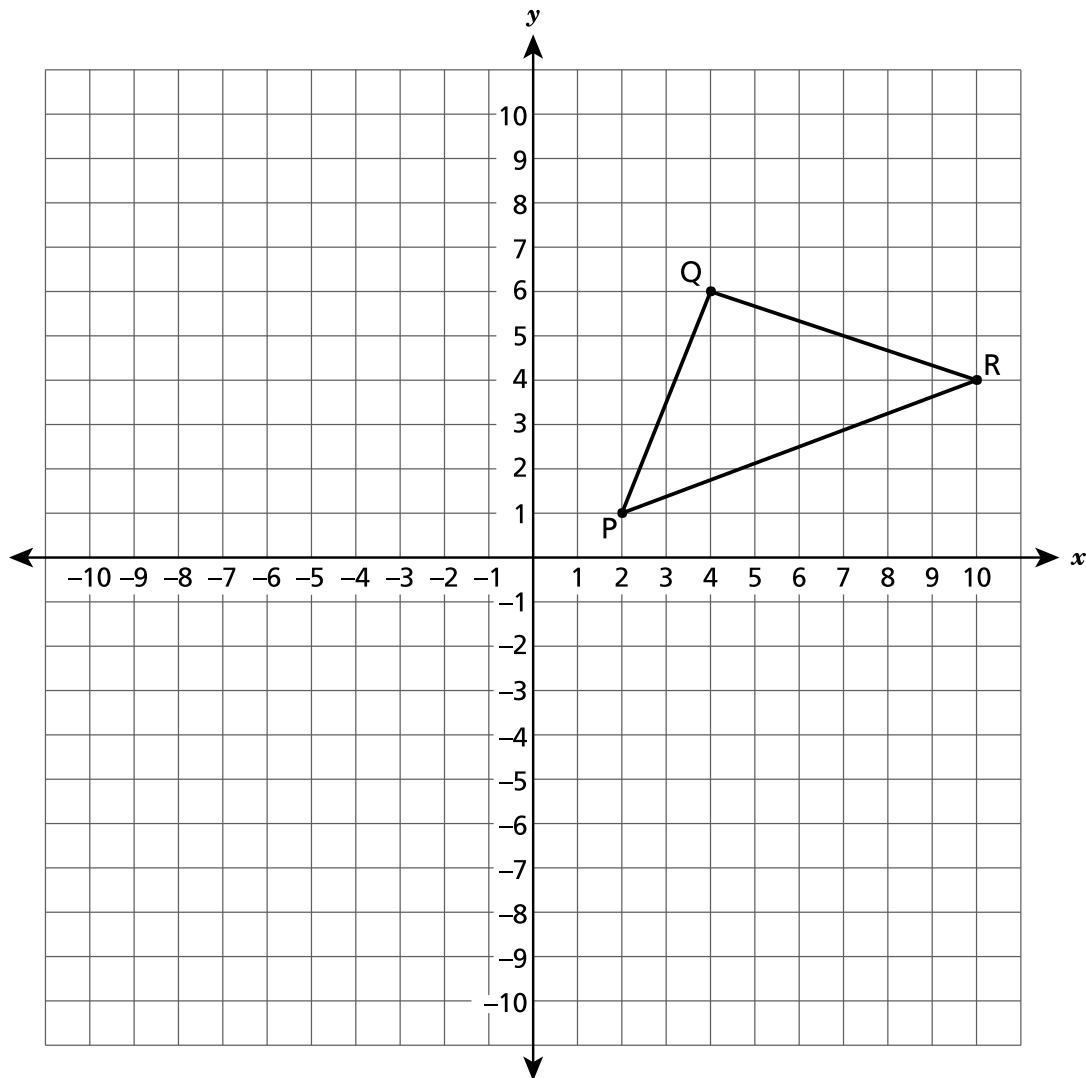
Ki valè pou konstan,  $n$ , ki pral bay okenn solisyon pou ekwasyon ki anba a?

$$n(5x + 7) = 10x + 12$$

- A 5
- B 2
- C -2
- D -5

***KONTINYE***

Triyang QPR trase nan kowòdone plan ki anba la a.



Triyang QPR sibi yon dilatasyon pa mwayen yon faktè echèl ki se  $\frac{1}{2}$  ak yon sant dilatasyon nan orijin nan pou kreye triyang  $Q'P'R'$ . Kisa ki kowòdone yo pou somè  $R'$  ?

- A (2, 5)
- B (5, 2)
- C (8, 20)
- D (20, 8)

**KONTINYE**

41

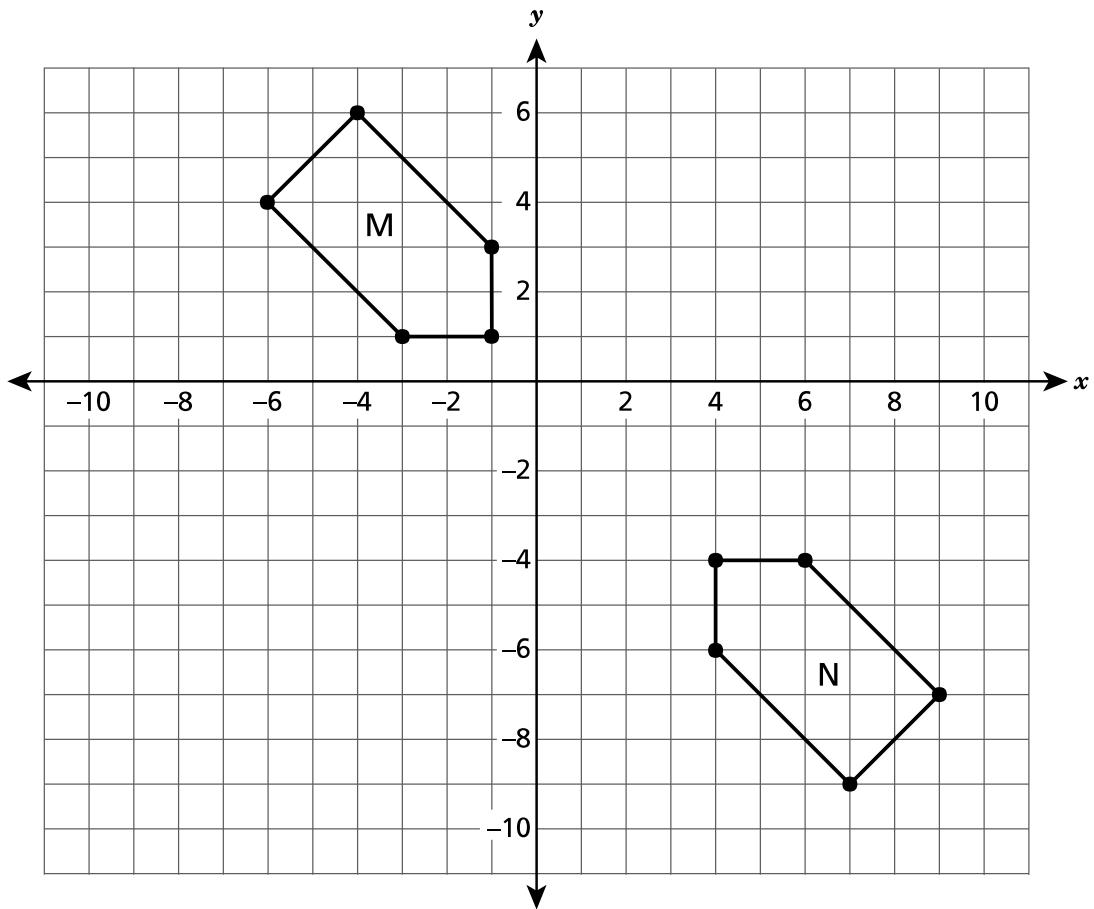
Yon kanpè limen yon lanp a lwil a 12è (midi) epi li kite l kontinye boule. Lè li limen lanp la, lanp la kontinye boule lwil nan yon to konstan chak èdtan. A 2 p.m., kantite lwil ki rete nan lanp la se 63 ons. A 5 p.m., kantite lwil ki rete nan lanp la se  $61\frac{1}{2}$  ons. Selon to mwayen lwil ki boule pa èdtan, konbyen ons lwil ki te nan lanp lan a 12è (midi)?

**Montre kijan ou fè pou jwenn repons lan.**

**Repons** \_\_\_\_\_ ons

**KONTINYE**

Figi M ak figi kongriyan li, figi N, trase sou yon kowòdone plan anba la a.



Dekri yon sekans transfòmasyon ki t ap mete M sou figi kongriyan li a, figi N.

*Eksplike repons ou an.*

---



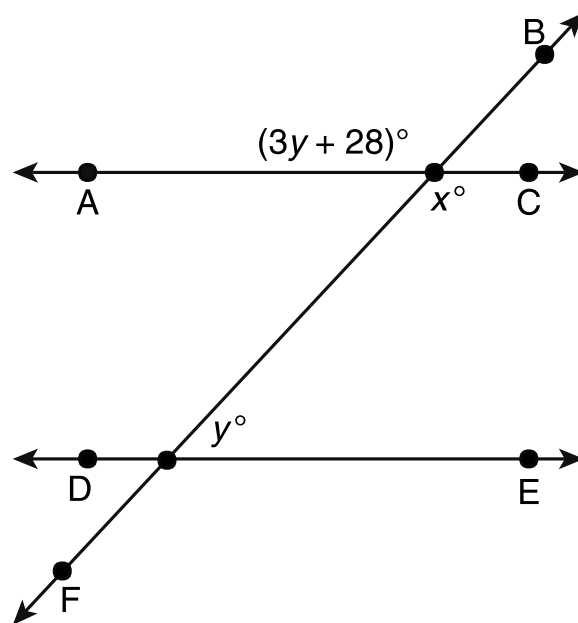
---



---

**KONTINYE**

- 43 Nan imaj ki anba la a,  $\overleftrightarrow{AC}$  paralèl ak  $\overleftrightarrow{DE}$  ak transvèsal  $\overleftrightarrow{BF}$ .



Detèmine valè  $x$  ak  $y$ .

*Montre kijan ou fè pou jwenn repons lan.*

**Repons**  $x =$  \_\_\_\_\_  
 $y =$  \_\_\_\_\_

**KONTINYE**

**44**

Men etap elèv la te pran pou rezoud yon ekwasyon.

$$\frac{3}{4}(-8x + 20) = -8(-x - 3)$$

Etap 1:  $-6x + 15 = 8x + 24$

Etap 2:  $15 = 2x + 24$

Etap 3:  $-9 = 2x$

Etap 4:  $x = -\frac{9}{2}$

Ki erè elèv la te fè epi ki sa k valè kòrèk  $x$  ?

***Eksplike repons ou an.***

---

---

---

***Repons***  $x =$  \_\_\_\_\_

***KONTINYE***



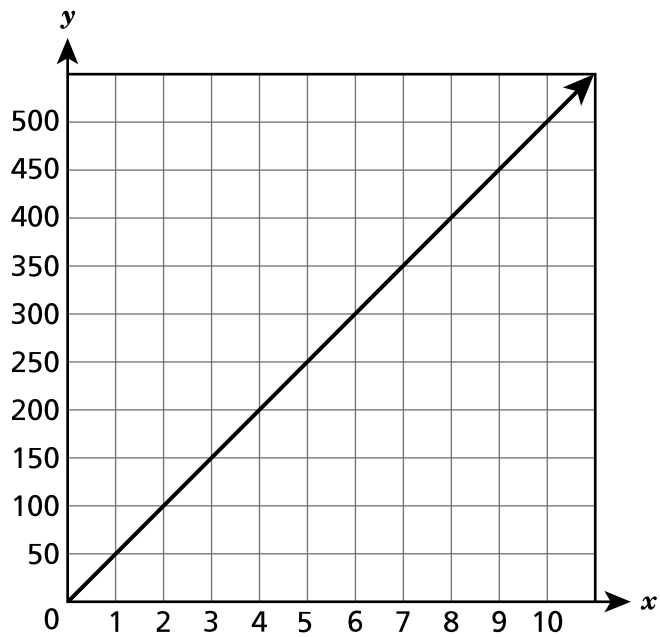
45

Gen de fonksyon ki reprezante anba la a.

**FONKSYON A**

$$y = 35x$$

**FONKSYON B**



Ki diferans ki genyen nan to chanjman ant Fonksyon A ak Fonksyon B? Pa bliye mete to chanjman pou chak fonksyon nan repons ou an.

*Eksplike repons ou an.*

---

---

---

**KONTINYE**

46

Nan plaj la, yon timoun itilize yon veso ki gen fòm yon silenn pou bati yon chato sab. Timoun nan ranpli veso a ak sab nèt.

- Veso a gen yon wotè 10 pous ak yon dyamèt 12 pous.
- Gen 231 pous kib nan yon galon sab.

Apeprè konbyen volim sab, an galon, nan veso a ye? Awondi repons ou an nan galon ki pi pre a.

*Montre kijan ou fè pou jwenn repons lan.*

*Repons* \_\_\_\_\_ galon

**KONTINYE**

**47** Detèmine solisyon ekwasyon ki anba la a.

$$3,2 - \frac{1}{2}(x + 4) = 4,8x + 2 - 5,2x$$

*Montre kijan ou fè pou jwenn repons lan.*

*Repons*  $x =$  \_\_\_\_\_

***KONTINYE***

Gen twa ekwasyon pi ba a.

- $y = x(3x + 2)$
- $y = \frac{x}{3} + 2$
- $y = 2 - 3x$

Idantifye yon ekwasyon lineyè ak yon ekwasyon non-lineyè nan lis la. Di poukisa chak ekwasyon ou te idantifye lineyè oswa non-lineyè.

**Ekwasyon lineyè** \_\_\_\_\_

**Endike rezon ou an.**

---

---

---

**Ekwasyon non-lineyè** \_\_\_\_\_

**Endike rezon ou an.**

---

---

---

---

**Ane 8**  
**2022**  
**Egzamen Matematik**  
**Seyans 2**  
26–28 Avril 2022

**Grade 8**  
**2022**  
**Mathematics Test**  
**Session 2**  
April 26–28, 2022

THE STATE EDUCATION DEPARTMENT  
 THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234  
 2022 Mathematics Tests Map to the Standards  
 Grade 8

Question	Type	Key	Points	Standard	Cluster
<b>Session 1</b>					
1	Multiple Choice	D	1	CCSS.Math.Content.8.F.B.5	Functions
2	Multiple Choice	A	1	CCSS.Math.Content.8.EE.C.7b	Expressions and Equations
3	Multiple Choice	A	1	CCSS.Math.Content.7.G.B.6	Geometry
4	Multiple Choice	D	1	CCSS.Math.Content.8.EE.B.6	Expressions and Equations
5	Multiple Choice	C	1	CCSS.Math.Content.7.G.B.5	Expressions and Equations
6	Multiple Choice	D	1	CCSS.Math.Content.8.G.A.4	Geometry
7	Multiple Choice	B	1	CCSS.Math.Content.8.SP.A.2	Statistics and Probability
8	Multiple Choice	C	1	CCSS.Math.Content.8.EE.C.7a	Expressions and Equations
14	Multiple Choice	C	1	CCSS.Math.Content.8.EE.A.1	Expressions and Equations
15	Multiple Choice	A	1	CCSS.Math.Content.8.F.B.4	Functions
16	Multiple Choice	A	1	CCSS.Math.Content.8.EE.C.7b	Expressions and Equations
19	Multiple Choice	B	1	CCSS.Math.Content.8.F.B.5	Functions
23	Multiple Choice	B	1	CCSS.Math.Content.8.G.C.9	Geometry
24	Multiple Choice	A	1	CCSS.Math.Content.7.G.A.2	Expressions and Equations
25	Multiple Choice	A	1	CCSS.Math.Content.8.EE.B.6	Expressions and Equations
26	Multiple Choice	B	1	CCSS.Math.Content.8.EE.B.5	Expressions and Equations
<b>Session 2</b>					
34	Multiple Choice	B	1	CCSS.Math.Content.8.SP.A.3	Statistics and Probability
35	Multiple Choice	C	1	CCSS.Math.Content.8.EE.A.1	Expressions and Equations
36	Multiple Choice	A	1	CCSS.Math.Content.8.G.A.5	Geometry
37	Multiple Choice	B	1	CCSS.Math.Content.8.G.A.2	Geometry
38	Multiple Choice	C	1	CCSS.Math.Content.8.F.A.1	Functions
39	Multiple Choice	B	1	CCSS.Math.Content.8.EE.C.7a	Expressions and Equations
40	Multiple Choice	B	1	CCSS.Math.Content.8.G.A.3	Geometry
41	Constructed Response		2	CCSS.Math.Content.8.F.B.4	Functions
42	Constructed Response		2	CCSS.Math.Content.8.G.A.2	Geometry
43	Constructed Response		2	CCSS.Math.Content.8.G.A.5	Geometry
44	Constructed Response		2	CCSS.Math.Content.8.EE.C.7b	Expressions and Equations
45	Constructed Response		2	CCSS.Math.Content.8.F.A.2	Functions
46	Constructed Response		2	CCSS.Math.Content.8.G.C.9	Geometry
47	Constructed Response		2	CCSS.Math.Content.8.EE.C.7b	Expressions and Equations
48	Constructed Response		3	CCSS.Math.Content.8.F.A.3	Functions

\*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.