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Our Students. Their Moment.

New York State Testing Program
Grade 8 Common Core
Mathematics Test

Released Questions

June 2017

New York State administered the Mathematics Common Core Tests in May 2017 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 2017 Exams

Background

In 2013, New York State 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 (SED) 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 large portions of the 2017 NYS Grades 3-8 Common Core English Language Arts and Mathematics test materials for review, discussion, and use.

For 2017, included in these released materials are at least 75 percent of the test questions that appeared on the 2017 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 of the 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 https://www.engageny.org/resource/test-guides-english-language-arts-and-mathematics.

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 future valid and reliable tests, some content must remain secure for possible use on future exams. As such, 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. Specific criteria for writing test questions, as well as additional assessment information, are available at http://www.engageny.org/common-core-assessments.

Name: _____

New York State Testing Program

2017 Common Core Mathematics Test Book 1

Grade 8

May 2–4, 2017

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.

Grade 8 Mathematics Reference Sheet

CONVERSIONS

1 inch = 2.54 centimeters
1 meter = 39.37 inches
1 mile = 5,280 feet
1 mile = 1,760 yards
1 mile = 1.609 kilometers

1 kilometer = 0.62 mile
1 pound = 16 ounces
1 pound = 0.454 kilogram
1 kilogram = 2.2 pounds
1 ton = 2,000 pounds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 gallon = 3.785 liters
1 liter = 0.264 gallon
1 liter = 1,000 cubic centimeters

FORMULAS

Triangle	$A = \frac{1}{2}bh$
Parallelogram	$A = bh$
Circle	$A = \pi r^2$
Circle	$C = \pi d$ or $C = 2\pi r$
General Prisms	$V = Bh$
Cylinder	$V = \pi r^2 h$
Sphere	$V = \frac{4}{3}\pi r^3$
Cone	$V = \frac{1}{3}\pi r^2 h$
Pythagorean Theorem	$a^2 + b^2 = c^2$

Book 1

TIPS FOR TAKING THE TEST

Here are some suggestions to help you do your best:

- Read each question carefully and think about the answer before choosing your response.
- You have been provided with mathematics tools (a ruler and a protractor) and a reference sheet to use during the test. It is up to you to decide when each tool and the reference sheet will be helpful. You should use mathematics tools and the reference sheet whenever you think they will help you to answer the question.

1 A certain human red blood cell has a diameter of 0.000007 meters. Which expression represents this diameter, in meters, in scientific notation?

A 7×10^{-6}

B 7×10^{-5}

C 7×10^{6}

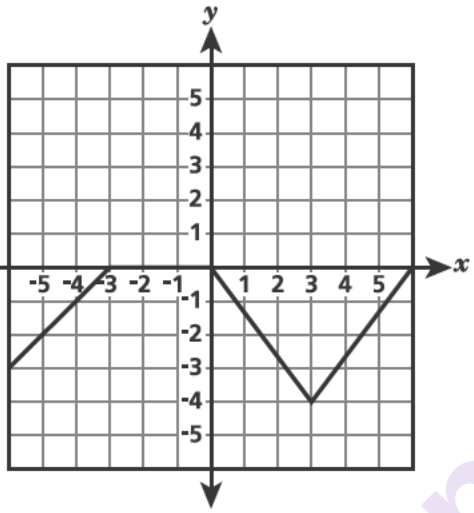
D 7×10^{5}

2 A function has the following properties:

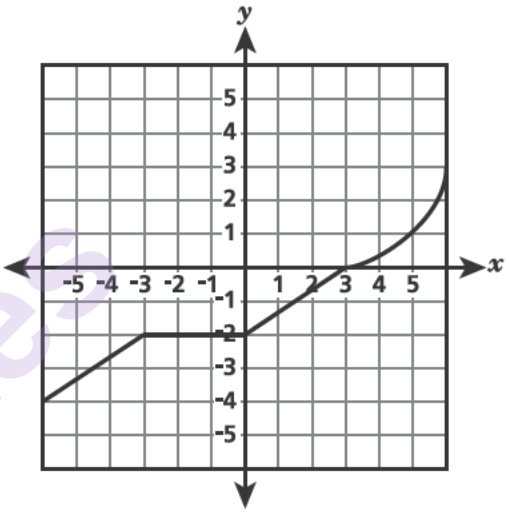
- It is increasing and linear when the value of x is between -5 and -3.
- It remains constant when the value of x is between -3 and 0.
- It is decreasing and linear when the value of x is between 0 and 3.
- It is increasing and nonlinear when the value of x is between 3 and 5.

Which graph **best** represents this function?

A



C



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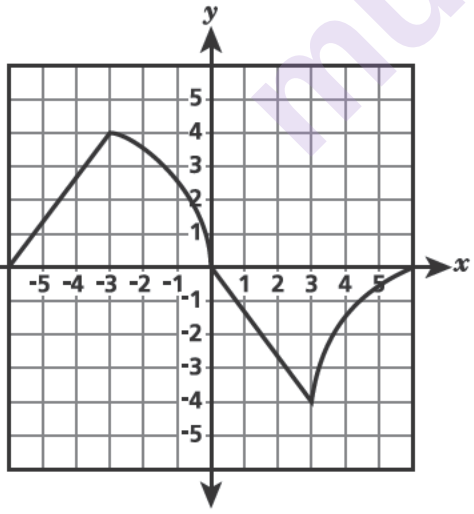

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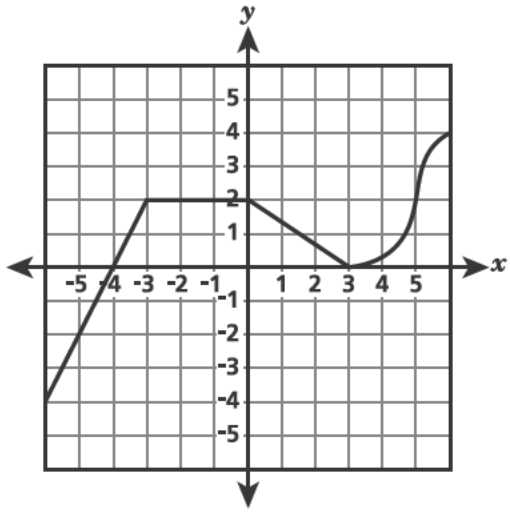
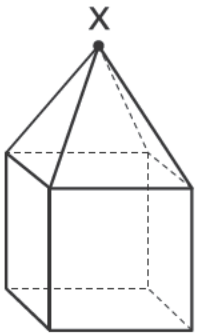


3 The figure shown below consists of a square pyramid on top of a cube. A vertical plane passes through point X and is perpendicular to the bases of both shapes, slicing the figure into equal halves.



What shape is created by the intersection of the vertical plane and these three-dimensional shapes?

A square

B triangle

C hexagon

D pentagon

4 Ms. Gibson made an initial deposit of $500 when opening a bank account. After the initial deposit, she deposited the same amount of money each month. The table below shows the total amount of money, a, she deposited into the account after a certain number of months, t, since opening it.

	Total Amount Depo i
4	$1,500
8	$2,500
10	$3,000
13	$3,750

Which equation models the relationship between a and t?

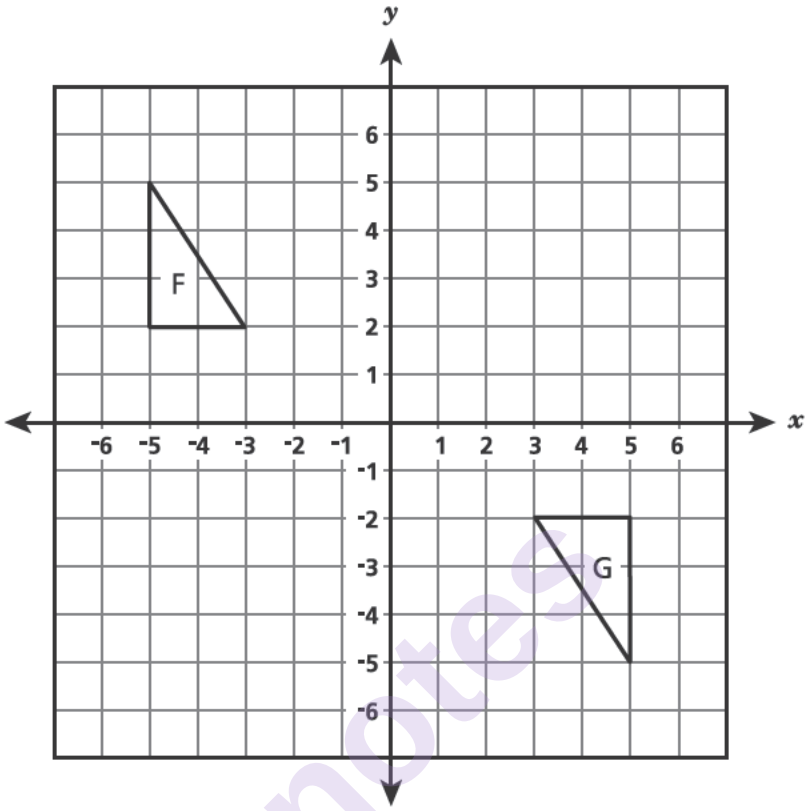
A $a = 250t$

B $a = 500t$

C $a = 250t + 500$

D $a = 500t + 250$

5 Triangle F and triangle G are shown below.



Which sequence does **not** transform triangle F to triangle G?

A a 180° clockwise rotation about the origin

B a 180° counterclockwise rotation about the origin

C a reflection over the *x*-axis and then a reflection over the *y*-axis

D a reflection over the *y*-axis and then a 90° clockwise rotation about the origin

6 Which statement explains the type of function that is represented by the equation $y = x^2 + 9$?

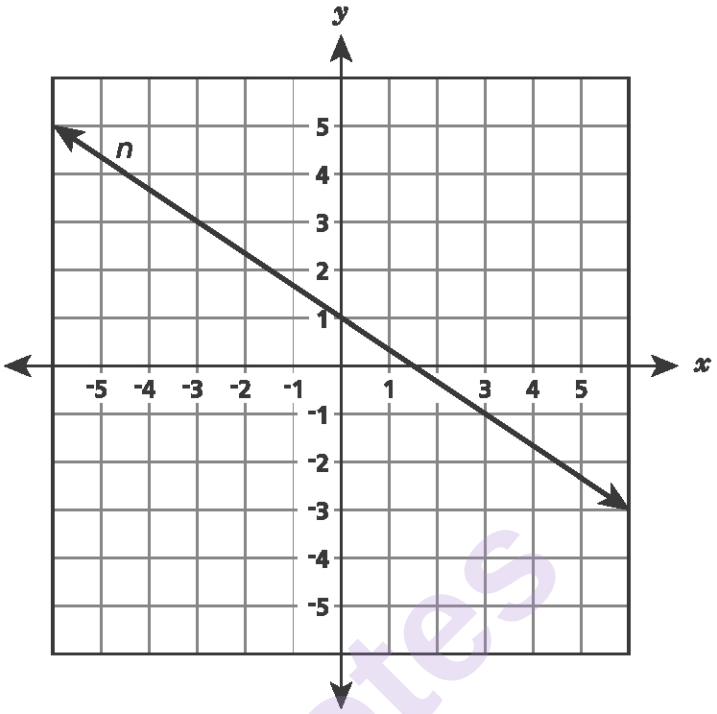
A The function is linear because it contains more than one term.

B The function is linear because the variable x is raised to the second power.

C The function is nonlinear because it contains more than one term.

D The function is nonlinear because the variable x is raised to the second power.

7 Line n is shown on the grid below.



Line q will be graphed on the same grid. The only solution to the system of linear equations formed by lines n and q occurs when $x = \frac{3}{2}$ and $y = 0$. Which equation could represent line q?

A $y = \frac{3}{2}x$

B $y = \frac{4}{3}x - 2$

C $y = -\frac{5}{2}x + 1$

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

8 The table represents linear Function F.

x	y
4	18
6	24
10	36

The equation $y = 4x + 2$ represents Function G.

Which statement is true?

A The rate of change of Function G is less than the rate of change of Function F because $2 < 3$.

B The rate of change of Function G is less than the rate of change of Function F because $4 < 9$.

C The rate of change of Function G is greater than the rate of change of Function F because $2 > \frac{9}{7}$.

D The rate of change of Function G is greater than the rate of change of Function F because $4 > 3$.

9 What is the solution to the equation shown below?

$$\frac{2}{3}x + 5 = 1$$

A $x = -6$

B $x = 4$

C $x = -4.5$

D $x = 9$

10 A company performed power tests on a set of batteries of the same type. The company determined that the equation $y = 100 - 8.9x$, where x is the number of hours of use and y is the percent of battery power remaining, models the battery life. Based on the equation, what is the **best** prediction of the percent of remaining power for a battery after 11 hours of use?

A 1.2%

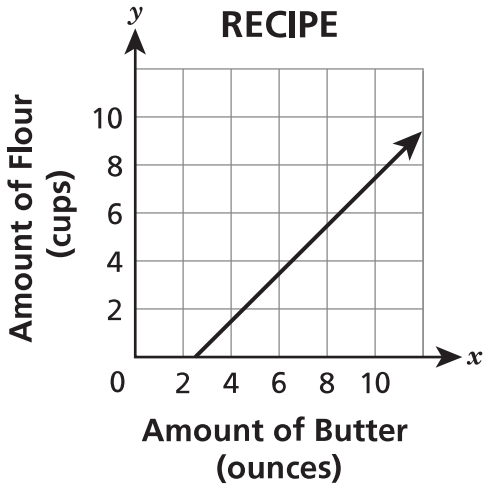
B 2.1%

C 10%

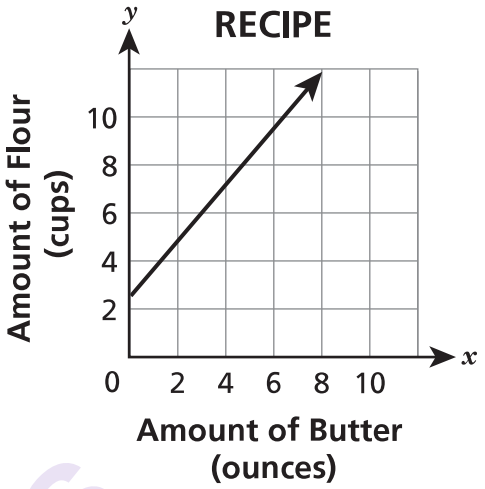
D 97.9%

15 A cook uses 2.5 cups of flour for each ounce of butter in a recipe. Which graph represents the relationship between the amount of flour and the amount of butter in the recipe?

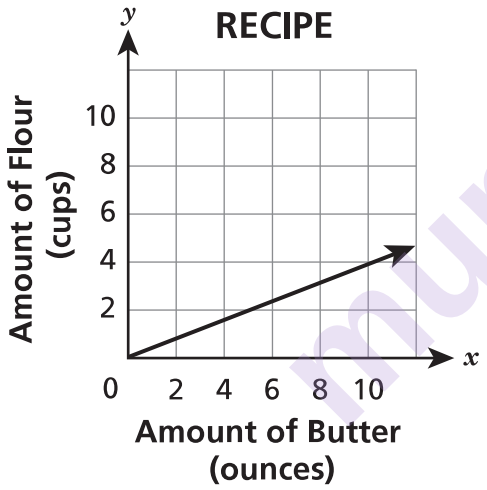
A



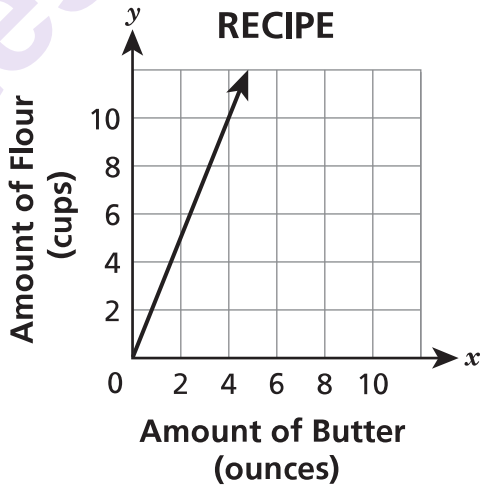
C



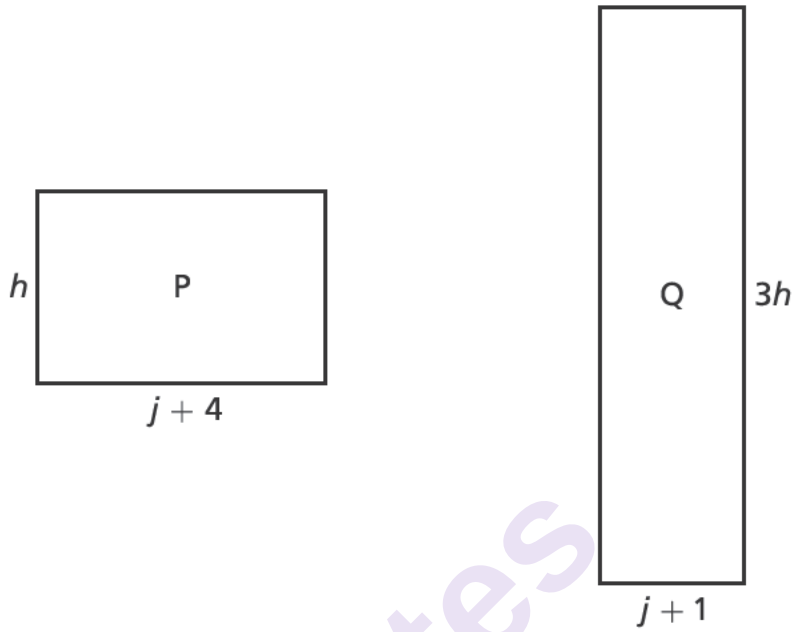
B



D



18 Two rectangles are shown below. Rectangle P has a perimeter of 20 inches. Rectangle Q has a perimeter of 30 inches.



What are the values of j and h?

A $j = 3$ and $h = 3$

B $j = 10$ and $h = 4$

C $j = 2$ and $h = 4$

D $j = 9.5$ and $h = 6.5$

19 A school club had a T-shirt sale to raise money. After the sale, an inventory showed that 108 blue T-shirts and 96 green T-shirts had been sold. The sizes of these T-shirts included 60 small, 86 medium, and 58 large. Which table correctly represents these data?

A

NUMBER OF T-SHIRTS SOLD

Color	Small	Medium	Large
Blue	60	86	58
Green	60	86	58

B

NUMBER OF T-SHIRTS SOLD

Color	Small	Medium	Large
Blue	34	46	28
Green	26	40	30

C

NUMBER OF T-SHIRTS SOLD

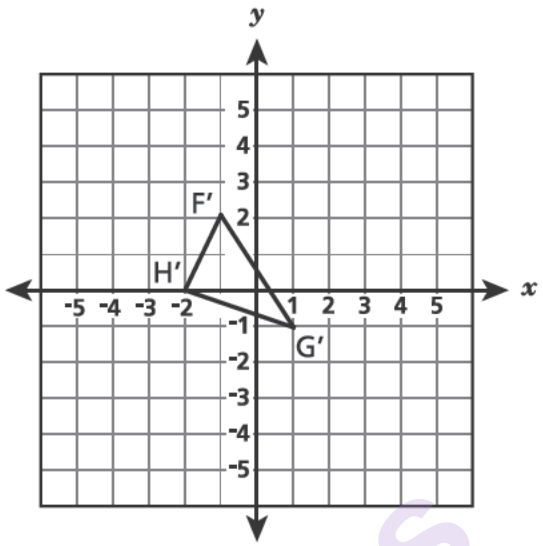
Color	Small	Medium	Large
Blue	30	43	29
Green	30	43	29

D

NUMBER OF T-SHIRTS SOLD

Color	Small	Medium	Large
Blue	26	40	30
Green	34	46	28

20 The vertices of a triangle are located at F(−4, −2), G(2, 2), and H(0, −4). A sequence of transformations to triangle FGH results in triangle F'G'H', as shown below.



Which sequence of transformations to triangle FGH results in triangle F'G'H'?

A a 90° clockwise rotation about the origin, then a dilation by a scale factor of 2 with a center of dilation at the origin

B a 90° counterclockwise rotation about the origin, then a dilation by a scale factor of 2 with a center of dilation at the origin

C a 90° counterclockwise rotation about the origin, then a dilation by a scale factor of $\frac{1}{2}$ with a center of dilation at the origin

D a 90° clockwise rotation about the origin, then a dilation by a scale factor of $\frac{1}{2}$ with a center of dilation at the origin

24 What is the value of n in the equation shown below?

$$2^2 \times 2^n = (2^4)^3$$

A 5

B 6

C 10

D 12

25 Which set of ordered pairs represents a function?

A {(2, 7), (2, 8), (3, 8)}

B {(3, 2), (3, 3), (3, 4)}

C {(4, 1), (5, 1), (4, 4)}

D {(5, 6), (8, 6), (9, 6)}

26 A parallelogram with vertices at (0, 3), (2, 0), (4, 2), and (2, 5) is reflected over the y-axis. Which vertex of the parallelogram will have the same x-coordinate before and after the reflection?

A (0, 3)

B (2, 0)

C (4, 2)

D (2, 5)

STOP

Grade 8
2017 Common Core Mathematics Test
Book 1
May 2–4, 2017

Name: _____

New York State Testing Program

2017 Common Core Mathematics Test Book 2

Grade 8

May 2–4, 2017

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.

Grade 8 Mathematics Reference Sheet

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FORMULAS

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General Prisms	$V = Bh$
Cylinder	$V = \pi r^2 h$
Sphere	$V = \frac{4}{3}\pi r^3$
Cone	$V = \frac{1}{3}\pi r^2 h$
Pythagorean Theorem	$a^2 + b^2 = c^2$

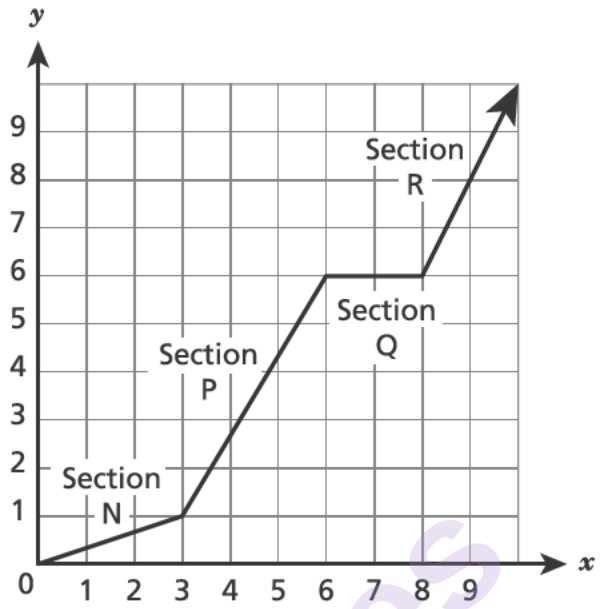
Book 2

TIPS FOR TAKING THE TEST

Here are some suggestions to help you do your best:

- Read each question carefully and think about the answer before choosing your response.
- You have been provided with mathematics tools (a ruler, a protractor, and a calculator) and a reference sheet to use during the test. It is up to you to decide when each tool and the reference sheet will be helpful. You should use mathematics tools and the reference sheet whenever you think they will help you to answer the question.

27 The graph of a function is shown below.



Which statement is **true** about a section of the graph?

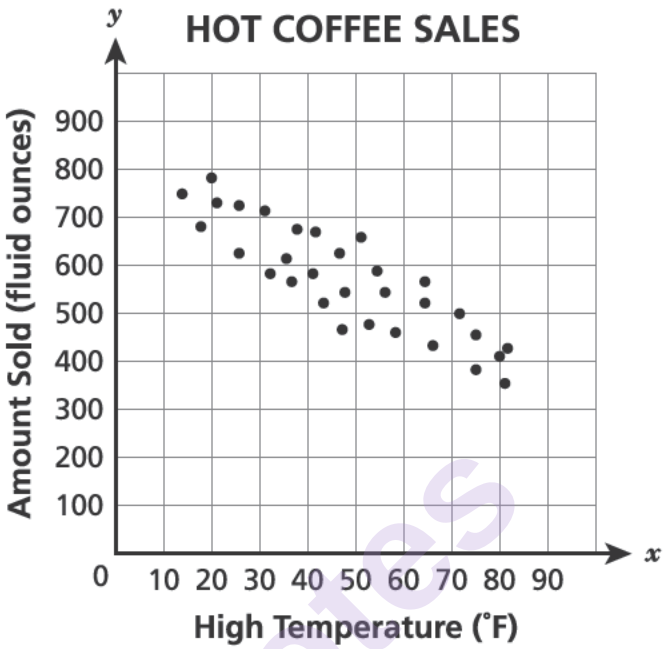
A In Section N, the function is linear and decreasing.

B In Section P, the function is linear and increasing.

C In Section Q, the function is nonlinear and decreasing.

D In Section R, the function is nonlinear and increasing.

28 The owner of a coffee shop compared the amount of hot coffee per day, in fluid ounces, sold and the daily high temperature, in degrees Fahrenheit, per day. Her data are shown in the scatter plot below.



If these data are modeled by the line $y = -5.9x + 850$, which statement **best** describes a valid prediction the owner could make?

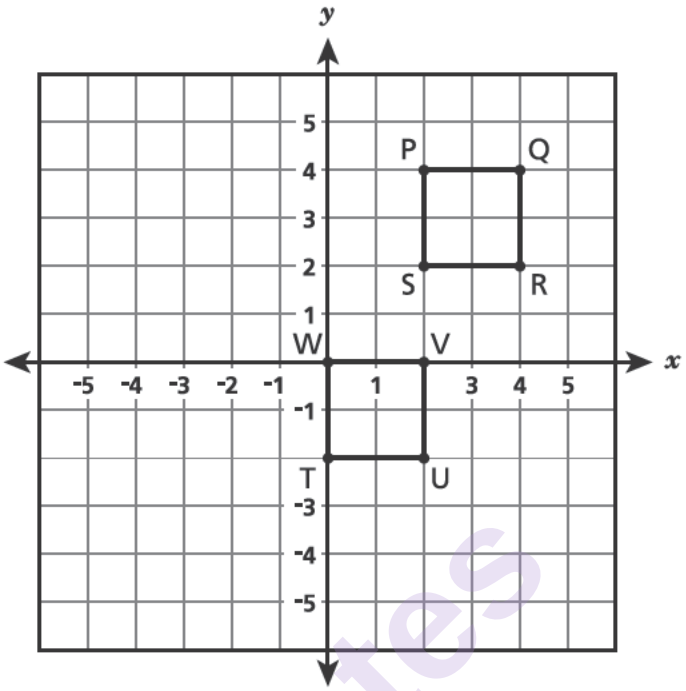
A For each temperature increase of 10°F, the shop can expect to sell about 60 fluid ounces more hot coffee.

B For each temperature decrease of 10°F, the shop can expect to sell about 6 fluid ounces more hot coffee.

C On a day with a high temperature of 0°F, the shop can expect to sell about 145 fluid ounces of hot coffee.

D On a day with a high temperature of 0°F, the shop can expect to sell about 850 fluid ounces of hot coffee.

29 Squares PQRS and TUVW are shown below.



Which sequence of transformations of square PQRS shows that square PQRS is congruent to square TUVW?

A a translation 2 units up and 2 units to the right, then a reflection over the *x*-axis

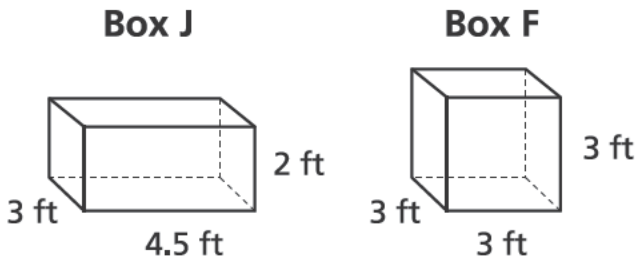
B a translation 2 units up and 2 units to the right, then a reflection over the *y*-axis

C a translation 2 units down and 2 units to the left, then a reflection over the *x*-axis

D a translation 2 units down and 2 units to the left, then a reflection over the *y*-axis

GO ON

30 Two types of shipping boxes are shown below.



What is the difference in the surface areas, in square feet, of the two boxes?

A 2

B 3

C 21

D 30

31 Which expression is equivalent to $2^2 \cdot \frac{2}{2^4}$?

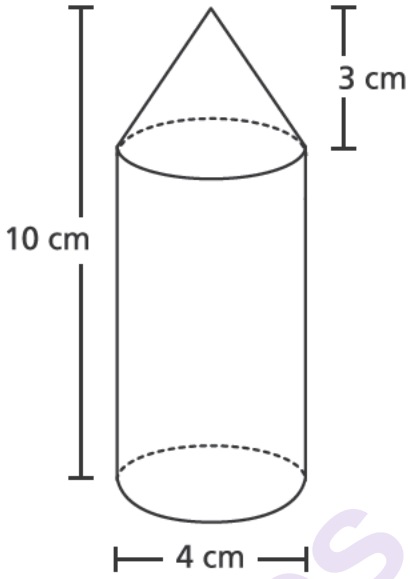
A 2^{-2}

B 2^{-1}

C 2^6

D 2^7

32 The object below was made by placing a cone on top of a cylinder. The base of the cone is congruent to the base of the cylinder.



What is the volume, in cubic centimeters, of the object?

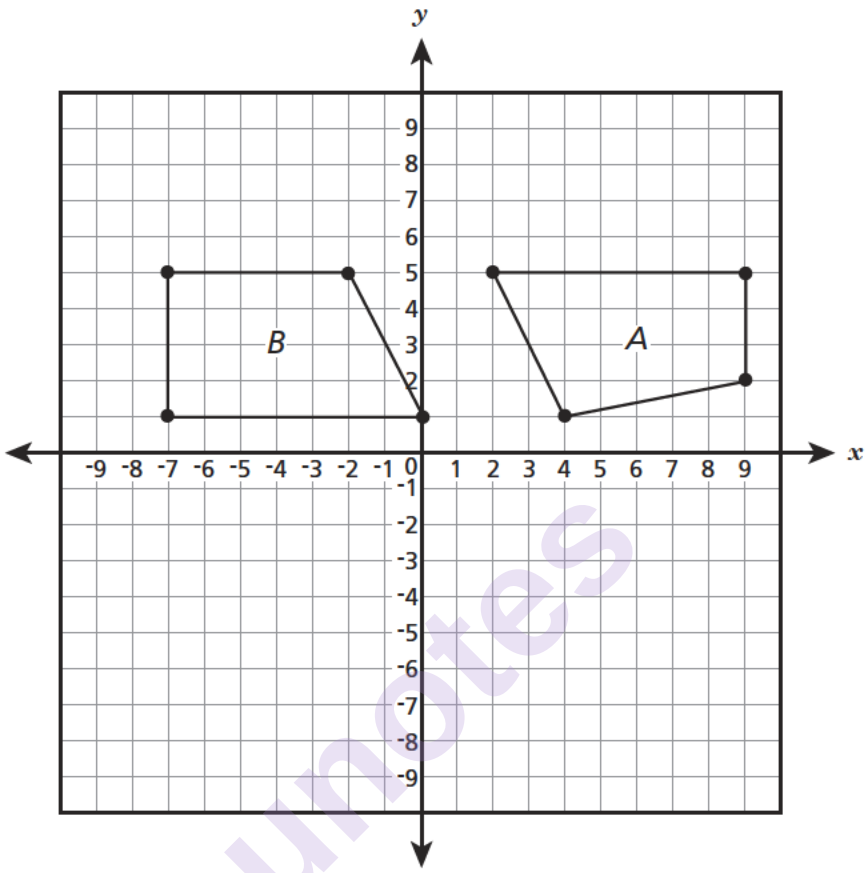
A 32π

B 40π

C 44π

D 128π

34 Lily wants to define a transformation (or series of transformations) using only rotations, reflections, or translations that takes Figure *A* to Figure *B*.



Which statement about the transformation that Lily wants to define is true?

A It can be defined with two reflections.

B It can be defined with one rotation and one translation.

C It cannot be defined because Figure *A* and Figure *B* are not congruent.

D It cannot be defined because the longest side of Figure *B* is on the bottom.

35 What is the solution to the system of equations below?

$$2x + 3y = 6$$
$$x - 3y = 9$$

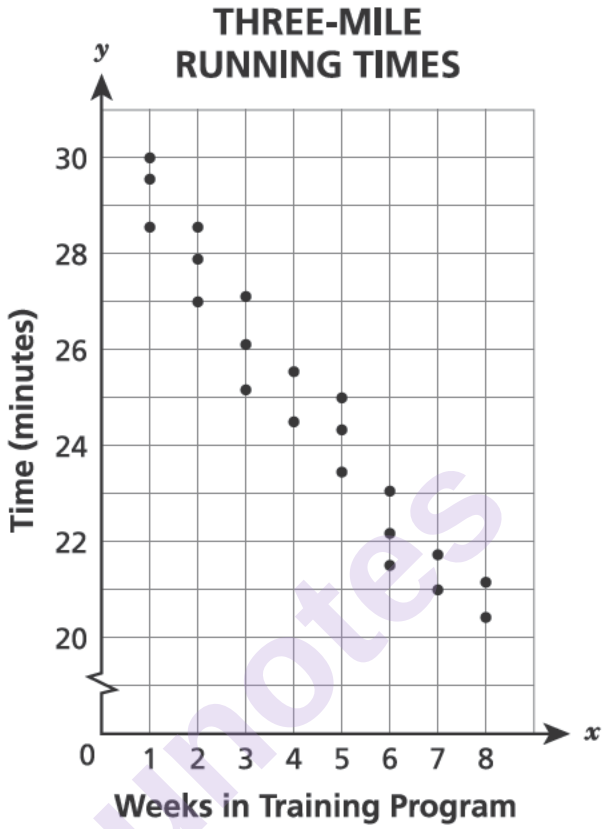
A $\left(-1, \frac{8}{3}\right)$

B $(-3, -4)$

C $\left(5, -\frac{4}{3}\right)$

D $\left(8, -\frac{1}{3}\right)$

36 As part of a training program for a triathlon, Marcie completes a three-mile run a few times each week. The scatter plot below shows the times in which Marcie completes this run for each week that she has been in the training program.



Based on these data, which statement **best** describes the relationship between the number of weeks Marcie has been in the training program and her running times?

A There is a negative linear association with no outliers.

B There is a negative linear association with one outlier.

C There is a positive linear association with no outliers.

D There is a positive linear association with one outlier.

37 What is the solution to the equation below?

$$5c + 4 = 2(c - 5)$$

A $c = -4\frac{2}{3}$

B $c = -3$

C $c = -2$

D $c = -\frac{1}{3}$

38 Which statement **best** explains whether these ordered pairs represent a function?

$$(-4, 2), (6, 7), (-8, 3), (9, 10), (12, 14), (6, 9)$$

A The ordered pairs represent a function because no output values are repeated.

B The ordered pairs represent a function because each output value is greater than each input value.

C The ordered pairs do not represent a function because one input value has two different output values.

D The ordered pairs do not represent a function because the difference between the input and output of each ordered pair is not the same.

39 The amount of revenue in dollars, y, that Jason receives from selling x posters is given by the equation $y = 4x$. The cost of producing x posters is given by the equation $y = \frac{1}{2}x + 280$. How many posters does Jason need to sell so that the cost and revenue are equal?

A 40

B 80

C 140

D 320

40 A car traveled 36 miles in 45 minutes. The car traveled at a constant speed. If the car continues to travel at this rate, which equation can be used to determine y, the total number of miles the car will travel, in x hours?

A $y = 48x$

B $y = x + 48$

C $48y = x$

D $48 + y = x$

42 The mass of a dust particle is approximately 7.5×10^{-10} kilograms and the mass of an electron is 9.1×10^{-31} kilograms. Approximately how many electrons have the same mass as one dust particle?

A 1.21×10^{20}

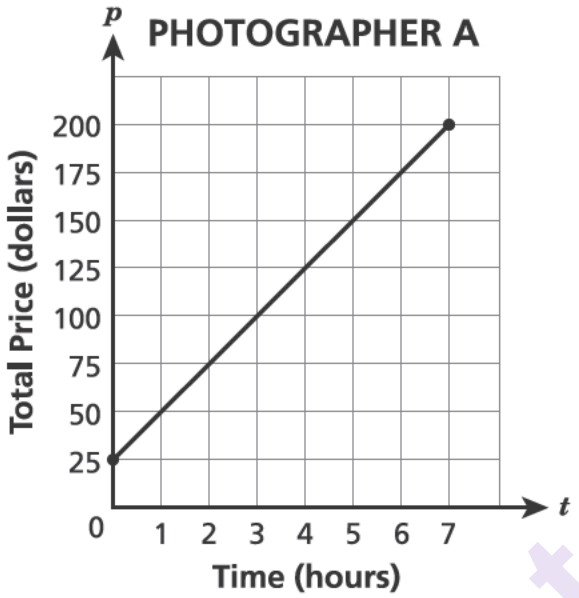
B 1.21×10^{21}

C 8.24×10^{20}

D 8.24×10^{21}

43 Two photographers offer different pricing plans for their services. The graph below models the prices Photographer A charges. The table below shows the prices Photographer B charges. Each photographer charges a one-time equipment fee and an hourly rate.

PHOTOGRAPHER A



PHOTOGRAPHER B

Time (hours)	2	4
Total Price	$80	$110

Which statement about the two pricing plans is true?

A Photographer A charges $15 per hour more than Photographer B.

B Photographer B charges $15 per hour more than Photographer A.

C Photographer A's equipment fee is $25 less than Photographer B's.

D Photographer B's equipment fee is $25 less than Photographer A's.

44 Acute △ABC is rotated about a point and then dilated by a scale factor of $\frac{1}{2}$ to produce △A'B'C'. Which statement correctly compares △A'B'C' to △ABC?

A The angle measures and side lengths of △A'B'C' are half the size of those of △ABC.

B The angle measures of △A'B'C' are the same as those of △ABC, but the side lengths of △A'B'C' are half the size of those of △ABC.

C The angle measures of △A'B'C' are the same as those of △ABC, but the side lengths of △A'B'C' are twice the size of those of △ABC.

D The angle measures of △A'B'C' depend on the angle of rotation, but the side lengths of △A'B'C' are half the size of those of △ABC.

45 Which expression is equivalent to $(4.5 \times 10^2) + (6.0 \times 10^3)$ and written in scientific notation?

A 1.05×10^6

B 2.7×10^6

C 6.45×10^3

D 10.5×10^5

46 The points $(2, -2)$ and $(-4, 13)$ lie on the graph of a linear function of x. Which point also lies on the graph of this function?

A $(-6, 18)$

B $(-1, 5)$

C $(7, 14.5)$

D $(13, -4)$

47 What value for the constant, h, in the equation shown below will result in an infinite number of solutions?

$$6x + 18 = h(3x + 9)$$

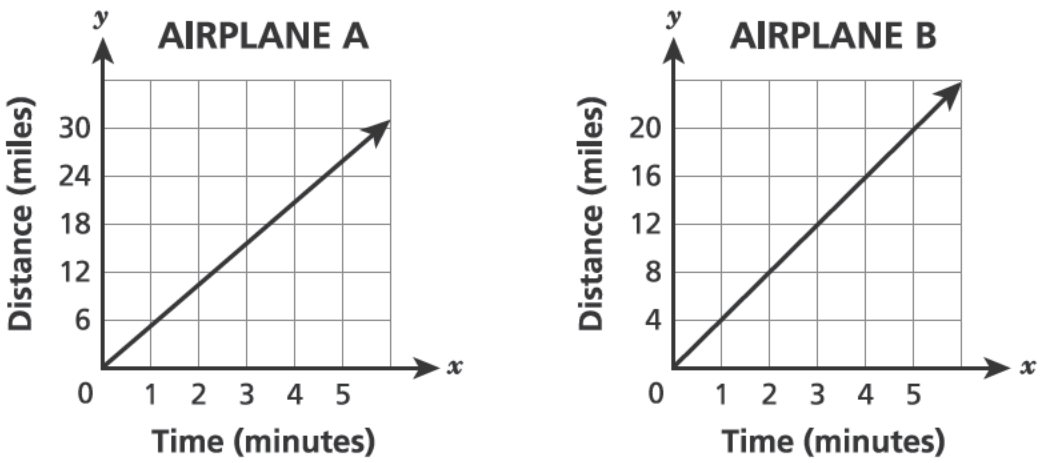
A -2

B -3

C 2

D 3

50 The graphs below show the relationship between elapsed time and distance traveled by airplane A and airplane B after each airplane reaches its cruising speed.



Airplane C is traveling at a different cruising speed. The equation $y = \frac{27}{6}x$ can be used to determine *y*, the number of miles traveled by airplane C in *x* minutes. Which statement accurately compares the cruising speed of airplane C to airplanes A and B?

A The cruising speed of airplane C is less than the cruising speeds of both airplanes A and B.

B The cruising speed of airplane C is greater than the cruising speeds of both airplanes A and B.

C The cruising speed of airplane C is greater than the cruising speed of airplane A and less than the cruising speed of airplane B.

D The cruising speed of airplane C is less than the cruising speed of airplane A and greater than the cruising speed of airplane B.

51 Two transformations are performed on a figure on a coordinate plane. The first transformation is a translation 8 units to the left. Which second transformation will result in an image that is similar to, but not congruent to, the original figure?

A a clockwise rotation of 90° about the center

B a clockwise rotation of 180° about the center

C a dilation by a scale factor of 1 with the origin as the center of dilation

D a dilation by a scale factor of $\frac{1}{2}$ with the origin as the center of dilation

STOP

Grade 8
2017 Common Core Mathematics Test
Book 2
May 2–4, 2017

Name: _____

New York State Testing Program

2017 Common Core Mathematics Test Book 3

Grade 8

May 2–4, 2017

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.

Grade 8 Mathematics Reference Sheet

CONVERSIONS

1 inch = 2.54 centimeters
1 meter = 39.37 inches
1 mile = 5,280 feet
1 mile = 1,760 yards
1 mile = 1.609 kilometers

1 kilometer = 0.62 mile
1 pound = 16 ounces
1 pound = 0.454 kilogram
1 kilogram = 2.2 pounds
1 ton = 2,000 pounds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 gallon = 3.785 liters
1 liter = 0.264 gallon
1 liter = 1,000 cubic centimeters

FORMULAS

Triangle	$A = \frac{1}{2}bh$
Parallelogram	$A = bh$
Circle	$A = \pi r^2$
Circle	$C = \pi d$ or $C = 2\pi r$
General Prisms	$V = Bh$
Cylinder	$V = \pi r^2 h$
Sphere	$V = \frac{4}{3}\pi r^3$
Cone	$V = \frac{1}{3}\pi r^2 h$
Pythagorean Theorem	$a^2 + b^2 = c^2$

Book 3

TIPS FOR TAKING THE TEST

Here are some suggestions to help you do your best:

- Read each question carefully and think about the answer before writing your response.
- You have been provided with mathematics tools (a ruler, a protractor, and a calculator) and a reference sheet to use during the test. It is up to you to decide when each tool and the reference sheet will be helpful. You should use mathematics tools and the reference sheet whenever you think they will help you to answer the question.
- Be sure to show your work when asked.

52 Determine the solution to the equation below.

$$-3.1x + 7 - 7.4x = 1.5x - 6\left(x - \frac{3}{2}\right)$$

Show your work.

Answer _____

GO ON

53 A cylinder and a cone have the same volume. The cylinder has a radius of 2 inches and a height of 3 inches. The cone has a radius of 3 inches. What is the height of the cone?

Show your work.

Answer _____ inches

54 Determine the solution, if any, to the system of equations below.

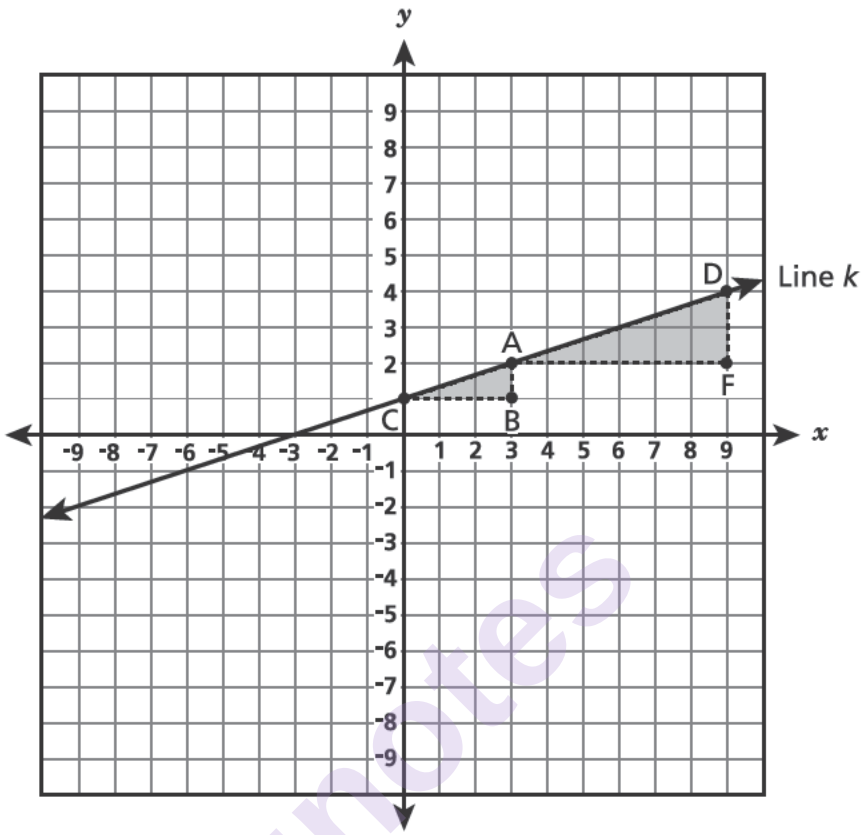
$$8x - 2y = 1$$
$$-4x + y = 3$$

Show your work.

Answer _____

GO ON

55 The hypotenuses of similar triangles ABC and DFA both lie on line k, as shown below.



Demonstrate whether the slope of line k is constant between points C and D. Use the leg lengths of triangles ABC and DFA in your answer.

56 The values in the table below represent Function B, which is a linear function.

x	y
-3	-7
-1	-1
1	5
3	11

Function L is represented by the equation $y = 6x + 4$. Compare Functions B and L by determining which one has the greater rate of change and which one has the greater y-intercept. Explain why your answers are correct.

Show your work.

GO ON

57 The values given in the table below lie on the graph of a linear function.

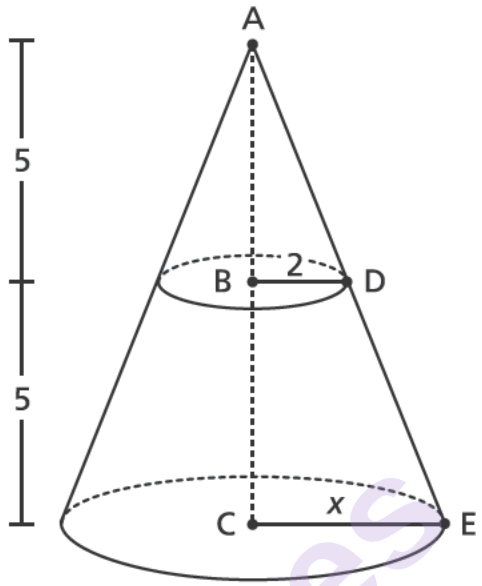
x	y
0.25	1.00
0.50	1.75
0.75	2.50

What equation represents this linear function?

Show your work.

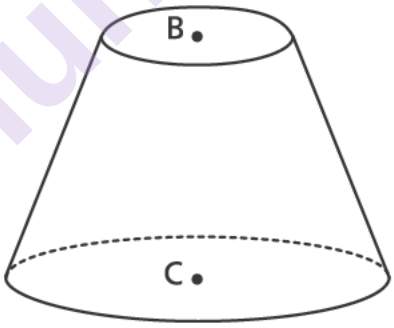
Answer _____

58 The circular base of the cone below has center C. Another circle, with center B, is parallel to the base. This circle is the base of a smaller cone with height AB. The measurements in the diagram are given in inches.



Triangle ABD is similar to triangle ACE.

The smaller cone is removed to create a new object, as shown below.



What is the volume of this new object? Round your answer to the nearest tenth.

Show your work.

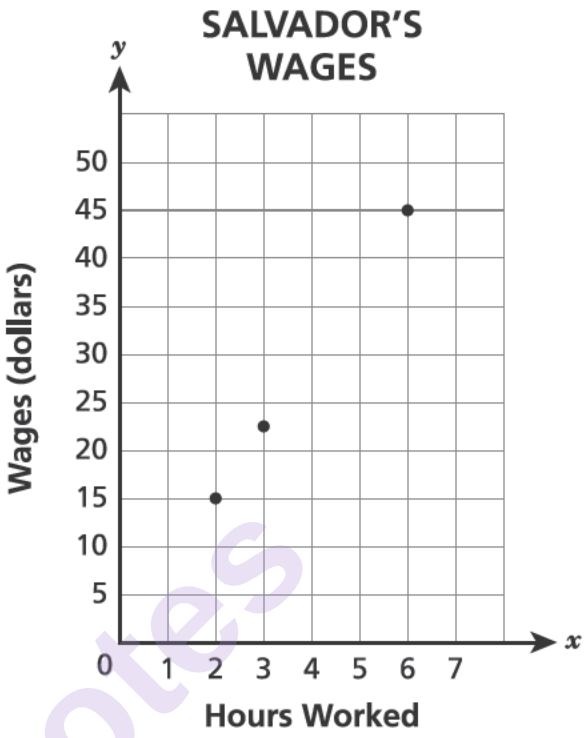
Answer _____ cubic inches

GO ON

59 The table and the graph below show Josie's and Salvador's wages, respectively, based on the number of hours worked.

JOSIE'S WAGES

Hours Worked	Wages (dollars)
3	26.25
5	43.75
7	61.25

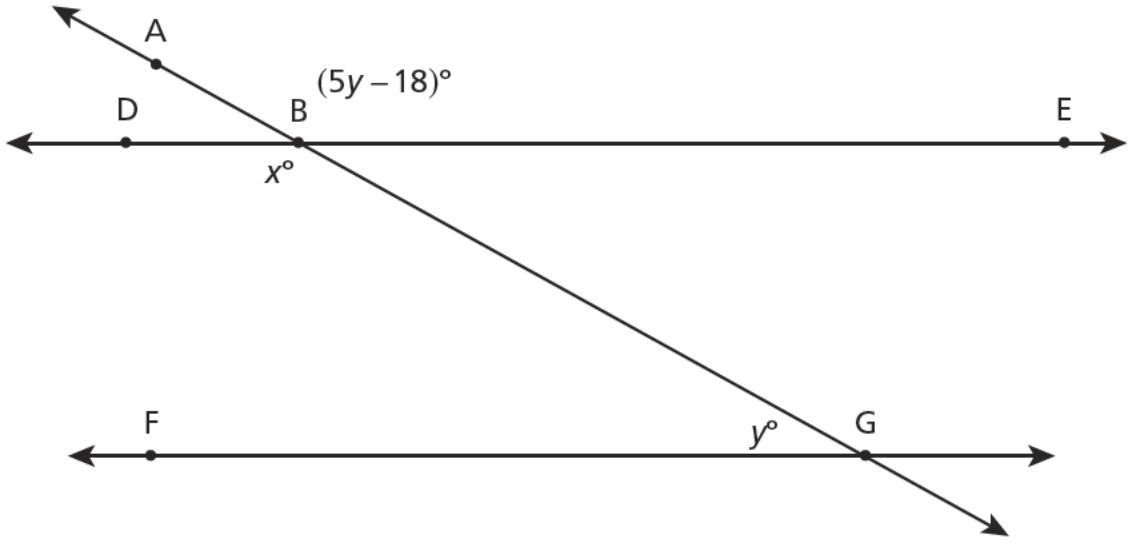


In 2010, Josie and Salvador each worked an eight-hour day for five days each week. How many weeks did it take Josie to earn $1,000 more than Salvador?

Show your work.

Answer _____ weeks

60 In the figure below, line DE is parallel to line FG, with transversal AG.



Write and solve a system of linear equations to determine the values of x and y.

Show your work.

Answer $x =$ _____ and $y =$ _____

GO ON

61 Four equations are shown below.

Equation 1: $y = 2^x$

Equation 2: $y = 2x - 5$

Equation 3: $y = x^2 + 6$

Equation 4: $y = \frac{x}{2}$

Identify one linear equation and one nonlinear equation from the list. State a reason why each equation you identified is linear or nonlinear.

Linear equation _____

_____

_____

_____

Nonlinear equation _____

_____

_____

_____

Grade 8
2017 Common Core Mathematics Test
Book 3
May 2–4, 2017

THE STATE EDUCATION DEPARTMENT
THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234
2017 Mathematics Tests Map to the Standards
Released Questions on EngageNY

Grade 8

Question	Type	Key	Points	Standard	Cluster	Secondary Standard(s)	Multiple Choice Questions: Percentage of Students Who Answered Correctly (P-Value)	Constructed Response Questions: Average Points Earned	Constructed Response Questions: P-Value (Average Points Earned ÷ Total Possible Points)
Book 1									
1	Multiple Choice	A	1	CCSS.Math.Content.8.EE.A.3	Expressions and Equations		0.62		
2	Multiple Choice	D	1	CCSS.Math.Content.8.F.B.5	Functions		0.46		
3	Multiple Choice	D	1	CCSS.Math.Content.7.G.A.3	Geometry		0.41		
4	Multiple Choice	C	1	CCSS.Math.Content.8.F.B.4	Functions		0.57		
5	Multiple Choice	D	1	CCSS.Math.Content.8.G.A.2	Geometry		0.53		
6	Multiple Choice	D	1	CCSS.Math.Content.8.F.A.3	Functions		0.66		
7	Multiple Choice	B	1	CCSS.Math.Content.8.EE.C.8a	Expressions and Equations		0.22		
8	Multiple Choice	D	1	CCSS.Math.Content.8.F.A.2	Functions		0.48		
9	Multiple Choice	A	1	CCSS.Math.Content.8.EE.C.7b	Expressions and Equations		0.54		
10	Multiple Choice	B	1	CCSS.Math.Content.8.SP.A.3	Statistics and Probability		0.49		
15	Multiple Choice	D	1	CCSS.Math.Content.8.EE.B.5	Expressions and Equations		0.46		
18	Multiple Choice	C	1	CCSS.Math.Content.8.EE.C.8c	Expressions and Equations		0.49		
19	Multiple Choice	B	1	CCSS.Math.Content.8.SP.A.4	Statistics and Probability		0.67		
20	Multiple Choice	D	1	CCSS.Math.Content.8.G.A.4	Geometry		0.36		
24	Multiple Choice	C	1	CCSS.Math.Content.8.EE.A.1	Expressions and Equations		0.36		
25	Multiple Choice	D	1	CCSS.Math.Content.8.F.A.1	Functions		0.56		

Released Questions on EngageNY

Grade 8

Question	Type	Key	Points	Standard	Cluster	Secondary Standard(s)	Multiple Choice Questions: Percentage of Students Who Answered Correctly (P-Value)	Constructed Response Questions: Average Points Earned	Constructed Response Questions: P-Value (Average Points Earned ÷ Total Possible Points)
26	Multiple Choice	A	1	CCSS.Math.Content.8.G.A.3	Geometry		0.58		
Book 2									
27	Multiple Choice	B	1	CCSS.Math.Content.8.F.B.5	Functions		0.83		
28	Multiple Choice	D	1	CCSS.Math.Content.8.SP.A.3	Statistics and Probability		0.44		
29	Multiple Choice	C	1	CCSS.Math.Content.8.G.A.2	Geometry		0.70		
30	Multiple Choice	B	1	CCSS.Math.Content.7.G.B.6	Geometry		0.48		
31	Multiple Choice	B	1	CCSS.Math.Content.8.EE.A.1	Expressions and Equations		0.36		
32	Multiple Choice	A	1	CCSS.Math.Content.8.G.C.9	Geometry		0.36		
34	Multiple Choice	C	1	CCSS.Math.Content.8.G.A.1	Geometry		0.58		
35	Multiple Choice	C	1	CCSS.Math.Content.8.EE.C.8b	Expressions and Equations		0.54		
36	Multiple Choice	A	1	CCSS.Math.Content.8.SP.A.1	Statistics and Probability		0.63		
37	Multiple Choice	A	1	CCSS.Math.Content.8.EE.C.7b	Expressions and Equations		0.54		
38	Multiple Choice	C	1	CCSS.Math.Content.8.F.A.1	Functions		0.47		
39	Multiple Choice	B	1	CCSS.Math.Content.8.EE.C.8c	Expressions and Equations		0.58		
40	Multiple Choice	A	1	CCSS.Math.Content.8.F.B.4	Functions		0.59		
42	Multiple Choice	C	1	CCSS.Math.Content.8.EE.A.4	Expressions and Equations		0.23		
43	Multiple Choice	C	1	CCSS.Math.Content.8.F.A.2	Functions		0.38		
44	Multiple Choice	B	1	CCSS.Math.Content.8.G.A.4	Geometry		0.39		

Released Questions on EngageNY

Grade 8

Question	Type	Key	Points	Standard	Cluster	Secondary Standard(s)	Multiple Choice Questions: Percentage of Students Who Answered Correctly (P-Value)	Constructed Response Questions: Average Points Earned	Constructed Response Questions: P-Value (Average Points Earned ÷ Total Possible Points)
45	Multiple Choice	C	1	CCSS.Math.Content.8.EE.A.4	Expressions and Equations		0.47		
46	Multiple Choice	A	1	CCSS.Math.Content.8.F.A.3	Functions		0.48		
47	Multiple Choice	C	1	CCSS.Math.Content.8.EE.C.7a	Expressions and Equations		0.57		
50	Multiple Choice	D	1	CCSS.Math.Content.8.EE.B.5	Expressions and Equations		0.45		
51	Multiple Choice	D	1	CCSS.Math.Content.8.G.A.4	Geometry		0.50		
Book 3									
52	Constructed Response		2	CCSS.Math.Content.8.EE.C.7b	Expressions and Equations			0.64	0.32
53	Constructed Response		2	CCSS.Math.Content.8.G.C.9	Geometry			0.81	0.40
54	Constructed Response		2	CCSS.Math.Content.8.EE.C.8b	Expressions and Equations			0.62	0.31
55	Constructed Response		2	CCSS.Math.Content.8.EE.B.6	Expressions and Equations			0.46	0.23
56	Constructed Response		2	CCSS.Math.Content.8.F.A.2	Functions			0.61	0.30
57	Constructed Response		2	CCSS.Math.Content.8.F.B.4	Functions			0.67	0.33
58	Constructed Response		3	CCSS.Math.Content.8.G.C.9	Geometry			0.46	0.15
59	Constructed Response		3	CCSS.Math.Content.8.EE.B.5	Expressions and Equations			0.83	0.28
60	Constructed Response		3	CCSS.Math.Content.8.EE.C.8c	Expressions and Equations			0.51	0.17
61	Constructed Response		3	CCSS.Math.Content.8.F.A.3	Functions			1.60	0.53

*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.