Student Name _____

Teacher Name _____

School _____

System _____

ALGEBRA I

PRACTICE TEST

Tennessee End of Course Assessment

Algebra I

Algebra I

22022

PEARSON

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Algebra I Reference Page

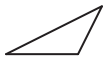
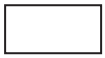
Abbreviations for Geometric Formulas

A = area	d = diameter	r = radius
B = area of base	h = height	s = length of side
b = base	ℓ = length	V = volume
C = circumference	P = perimeter	w = width

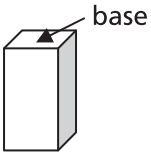
Perimeter (P) and Circumference (C)

Any Polygon:	P = sum of side lengths
Rectangle:	$P = 2\ell + 2w$
Circle:	$C = 2\pi r$ or πd
	$\pi \approx 3.14$ or $\frac{22}{7}$

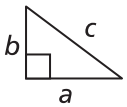
Plane Figures — Area (A)

Triangle:		$A = \frac{1}{2}bh$
Rectangle:		$A = \ell w$
Circle:		$A = \pi r^2$
		$\pi \approx 3.14$ or $\frac{22}{7}$

Solid Figures — Volume (V)

Right Rectangular Prism		$V = Bh$ or $V = \ell wh$
Cube		$V = s^3$

Algebraic Formulas and Equations

$d = rt$	distance = rate × time
Distance Formula	$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
	d = distance between two points
Midpoint Formula:	$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$
Slope Formula:	$m = \frac{y_2 - y_1}{x_2 - x_1}$
Standard Form of a Linear Equation:	$Ax + By = C$
Slope-Intercept Equation:	$y = mx + b$
Point-Slope Equation:	$y - y_1 = m(x - x_1)$
Pythagorean Theorem:	$a^2 + b^2 = c^2$ 

Quadratics

For $ax^2 + bx + c = 0$:	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Discriminant:	$b^2 - 4ac$

Measurement Conversions

LENGTH

1 foot (ft) = 12 inches (in.)
1 yard (yd) = 3 feet
1 yard = 36 inches
1 mile = 1,760 yards
1 mile = 5,280 feet

CAPACITY

1 cup (c) = 8 fluid ounces (fl oz)
1 pint (pt) = 2 cups
1 quart (qt) = 2 pints
1 quart = 4 cups
1 gallon (gal) = 4 quarts

WEIGHT

1 pound (lb) = 16 ounces (oz)
1 ton (T) = 2,000 pounds

CONVERSION BETWEEN CUSTOMARY AND METRIC MEASUREMENT

1 yard = 0.9144 m
1 foot = 0.3048 m
1 inch = 2.54 cm
1 quart = 0.946 L
1 ounce = 28.35 g
1 lb = 0.45 kg

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Introduction to Algebra I

Content of tests

The testing program titled the *Tennessee End of Course Assessment* was established to meet the Tennessee mandate for end of course assessments in Tennessee secondary schools. These tests measure the Tennessee State Performance Indicators. Subject areas covered by the end of course assessments include Mathematics, Language Arts, History, and Science.

Test development

For the *Tennessee End of Course Assessment*, professional item writers experienced in each of the content areas researched and wrote the items. Professional editors and test developers carefully reviewed all items and test directions for content and accuracy. To provide a large pool of items for final test selection, the test developers created approximately 50% more items as were needed in the final editions of the tests.

After items were field tested, student responses were analyzed. Professional content editors and researchers carefully reviewed items, their data, and test directions for content, suitability, and accuracy before including certain items and test directions in operational tests.

Test administration

Tennessee End of Course Assessments are given to students as they are completing courses that are included in the program. Tests may be given midyear for block schedules or at the end of the school year.

This test contains 65 multiple-choice questions.

You will have ample time to read and answer each of the questions. The Algebra I test has been designed to be administered in one session and is not timed. The first 15 minutes are set aside to complete identifying data on the answer sheet.

A reference page, similar to the one located in this Practice Test, will be in the front of the actual test. This page includes a list of formulas, equations, and tables for use during testing.

Calculator use is optional. Sharing calculators during testing is not permitted.

The following types of calculators/devices may **NOT** be used during the test:

- pocket organizers
- electronic writing pads or input devices
- Some examples of prohibited calculators are:
  - Casio models: CFX-9970G, Algebra FX 2.0
  - Hewlett-Packard models: HP-40G, HP-49G
  - Texas Instruments models: TI-89, TI-92, Voyage 200, TI-NSPIRE - the CAS version (The non-CAS version of TI-NSPIRE is allowable.)
- calculators that can communicate (transfer data or information) wirelessly with other student calculators/devices
- cell phones, PSPs, and/or iPods

Students may use any four-function, scientific, or graphing calculator that does not have any of the above features. The use of units that have a Computer Algebra System (CAS) is NOT allowed.

Tips for Taking the Test

Preparing for the test

- Take this Practice Test several times.
- Review the Tennessee End of Course Item Sampler for Algebra I located at http://tennessee.gov/education/assessment/sec_samplers.shtml on the Tennessee Department of Education Web site.
- Become familiar with the correct way to mark answers on the answer sheet. There is a sample answer sheet in this Practice Test.

Before the test

- Get a good night's sleep. To do your best, you need to be rested.

During the test

- Relax. It is normal to be somewhat nervous before the test. Try to relax and not worry.
- Listen. Listen to and read the test directions carefully. Ask for an explanation of the directions if you do not understand them.
- Plan your time. Do not spend too much time on any one question. If a question seems to take too long, skip it and return to it later. First answer all questions that you are sure about.
- Think. If you are not sure how to answer a question, read it again and try your best to answer the question. Rule out answer choices that you know are incorrect and choose from those that remain.

Answer Sheet for the Practice Test

1 Ⓐ Ⓑ Ⓒ Ⓓ	14 Ⓕ Ⓖ Ⓗ Ⓙ	27 Ⓐ Ⓑ Ⓒ Ⓓ	40 Ⓕ Ⓖ Ⓗ Ⓙ	53 Ⓐ Ⓑ Ⓒ Ⓓ
2 Ⓕ Ⓖ Ⓗ Ⓙ	15 Ⓐ Ⓑ Ⓒ Ⓓ	28 Ⓕ Ⓖ Ⓗ Ⓙ	41 Ⓐ Ⓑ Ⓒ Ⓓ	54 Ⓕ Ⓖ Ⓗ Ⓙ
3 Ⓐ Ⓑ Ⓒ Ⓓ	16 Ⓕ Ⓖ Ⓗ Ⓙ	29 Ⓐ Ⓑ Ⓒ Ⓓ	42 Ⓕ Ⓖ Ⓗ Ⓙ	55 Ⓐ Ⓑ Ⓒ Ⓓ
4 Ⓕ Ⓖ Ⓗ Ⓙ	17 Ⓐ Ⓑ Ⓒ Ⓓ	30 Ⓕ Ⓖ Ⓗ Ⓙ	43 Ⓐ Ⓑ Ⓒ Ⓓ	56 Ⓕ Ⓖ Ⓗ Ⓙ
5 Ⓐ Ⓑ Ⓒ Ⓓ	18 Ⓕ Ⓖ Ⓗ Ⓙ	31 Ⓐ Ⓑ Ⓒ Ⓓ	44 Ⓕ Ⓖ Ⓗ Ⓙ	57 Ⓐ Ⓑ Ⓒ Ⓓ
6 Ⓕ Ⓖ Ⓗ Ⓙ	19 Ⓐ Ⓑ Ⓒ Ⓓ	32 Ⓕ Ⓖ Ⓗ Ⓙ	45 Ⓐ Ⓑ Ⓒ Ⓓ	58 Ⓕ Ⓖ Ⓗ Ⓙ
7 Ⓐ Ⓑ Ⓒ Ⓓ	20 Ⓕ Ⓖ Ⓗ Ⓙ	33 Ⓐ Ⓑ Ⓒ Ⓓ	46 Ⓕ Ⓖ Ⓗ Ⓙ	59 Ⓐ Ⓑ Ⓒ Ⓓ
8 Ⓕ Ⓖ Ⓗ Ⓙ	21 Ⓐ Ⓑ Ⓒ Ⓓ	34 Ⓕ Ⓖ Ⓗ Ⓙ	47 Ⓐ Ⓑ Ⓒ Ⓓ	60 Ⓕ Ⓖ Ⓗ Ⓙ
9 Ⓐ Ⓑ Ⓒ Ⓓ	22 Ⓕ Ⓖ Ⓗ Ⓙ	35 Ⓐ Ⓑ Ⓒ Ⓓ	48 Ⓕ Ⓖ Ⓗ Ⓙ	61 Ⓐ Ⓑ Ⓒ Ⓓ
10 Ⓕ Ⓖ Ⓗ Ⓙ	23 Ⓐ Ⓑ Ⓒ Ⓓ	36 Ⓕ Ⓖ Ⓗ Ⓙ	49 Ⓐ Ⓑ Ⓒ Ⓓ	62 Ⓕ Ⓖ Ⓗ Ⓙ
11 Ⓐ Ⓑ Ⓒ Ⓓ	24 Ⓕ Ⓖ Ⓗ Ⓙ	37 Ⓐ Ⓑ Ⓒ Ⓓ	50 Ⓕ Ⓖ Ⓗ Ⓙ	63 Ⓐ Ⓑ Ⓒ Ⓓ
12 Ⓕ Ⓖ Ⓗ Ⓙ	25 Ⓐ Ⓑ Ⓒ Ⓓ	38 Ⓕ Ⓖ Ⓗ Ⓙ	51 Ⓐ Ⓑ Ⓒ Ⓓ	64 Ⓕ Ⓖ Ⓗ Ⓙ
13 Ⓐ Ⓑ Ⓒ Ⓓ	26 Ⓕ Ⓖ Ⓗ Ⓙ	39 Ⓐ Ⓑ Ⓒ Ⓓ	52 Ⓕ Ⓖ Ⓗ Ⓙ	65 Ⓐ Ⓑ Ⓒ Ⓓ

Directions for Taking the Practice Test

In this Practice Test, you will perform various mathematical operations. You may use your calculator and Reference Page located in the front of this book to help you solve the problems. You may write in the open spaces in this book to work the problems, but remember to fill in the circle on your answer sheet that goes with the answer you choose for each question. Fill in the circle completely and make your mark heavy and dark. If you want to change an answer, erase the mark you made and make a new mark.

You will do the items in this Practice Test by yourself. Remember to read all the directions carefully. When you see the words *Go On* at the bottom of the page, go to the next page. When you come to the word STOP, you have finished this test. When you have finished, you may check your answers.

On your answer sheet, find Number 1. Mark your answers beginning with Number 1.

You may begin.

Stop when you have finished the test.

At the end of the Practice Test, make sure that all your marks are heavy and dark and that you have completely erased any marks that you do not want.

Turn to Page 40 and locate the Answer Key. Check your answers and review those items that you marked incorrectly.

1 Factor: $x^2 + 15x - 54$

A $(x - 9)(x + 6)$
B $(x + 9)(x - 6)$
C $(x - 3)(x + 18)$
D $(x + 3)(x - 18)$

2 What are the coordinates of the midpoint of a line segment with endpoints $(-1, 3)$ and $(5, 7)$?

F $(2, 5)$
G $(3, 2)$
H $(5, 2)$
J $(6, 4)$

3 What is the value of $\sqrt{\frac{25}{16}} - \sqrt{\frac{36}{25}}$?

A $\frac{7}{400}$

B $\frac{1}{20}$

C $\frac{29}{400}$

D $\frac{7}{20}$

4 What is the value of the expression when $x = 4$ and $y = -2$?

$$\frac{x^2}{2} + xy^3$$

F -28
G -24
H -20
J -16

5 Which set of numbers is ordered from greatest to least?

A $\left\{\frac{13}{8}, \sqrt{3}, 1.75, \frac{9}{5}\right\}$

B $\left\{\sqrt{3}, \frac{9}{5}, 1.75, \frac{13}{8}\right\}$

C $\left\{\frac{9}{5}, 1.75, \frac{13}{8}, \sqrt{3}\right\}$

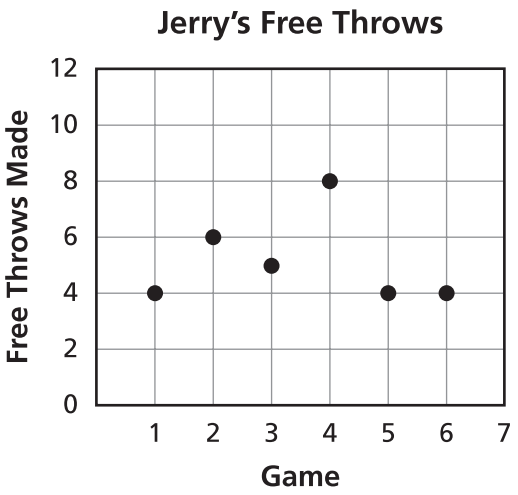
D $\left\{\frac{9}{5}, 1.75, \sqrt{3}, \frac{13}{8}\right\}$

6 An 8-ounce package of cheese costs \$4.29. Which is closest to the cost per pound?

F \$0.54
G \$2.15
H \$6.29
J \$8.58

Go On ▶

7 The scatterplot shows the number of free throws Jerry made in six basketball games.



For game seven, which number of free throws that Jerry could make would be considered an outlier?

A 3
B 4
C 8
D 12

8 $(5m^3 + 2m^2 - m) + (m^2 + 4m - 2) =$

F $5m^3 + 3m^2 - 5m + 2$
G $5m^3 + 3m^2 + 3m - 2$
H $5m^3 + 2m^2 - 5m - 2$
J $5m^3 + 2m^2 + 3m + 2$

Go On ▶

9 Which expression is closest to $(9.06 \times 10^{-5})(6.022 \times 10^{23})$?

A 1.51×10^{18}

B 1.51×10^{19}

C 5.46×10^{18}

D 5.46×10^{19}

10 Simplify $\frac{x^2 - x - 6}{2x^2 + x - 6}$ for all values of x for which the expression is defined.

F $x^2 + 2x$

G $3x^2 - 12$

H $\frac{x - 3}{2x - 3}$

J $\frac{x - 3}{2x + 3}$

Go On ▶

11 **Solve:** $20x - 18 < 50 < 36x - 16$

A $1\frac{5}{6} < x < 3\frac{2}{5}$

B $1\frac{5}{6} < x < \frac{17}{18}$

C $1\frac{3}{5} < x < 3\frac{2}{5}$

D $1\frac{3}{5} < x < \frac{17}{18}$

12 Nyesha earns $1,000 per month plus a commission of 5% of the total dollar amount of each sale she makes. Her total monthly earnings, P, are represented by the equation $P = 1{,}000 + 0.05t$, where t represents the total dollar amount of her sales for the month. Which equation will represent her total monthly earnings in dollars if her commission increases an additional 2%?

F $P = 1{,}200 + 0.05t$

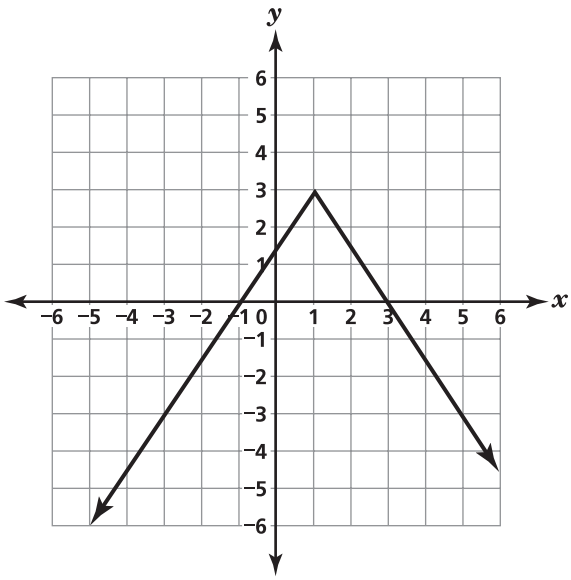
G $P = 1{,}000 + 0.02t$

H $P = 1{,}200 + 0.07t$

J $P = 1{,}000 + 0.07t$

Go On ▶

13 This graph represents a relation.



Which set of ordered pairs is included in this relation?

A $\{(-3,-3), (0,3), (3,1)\}$

B $\{(0,-1), (2,2), (4,-1)\}$

C $\{(-5,-6), (3,0), (5,-3)\}$

D $\{(-4,-4), (-2,-2), (4,-3)\}$

14 Which function represents the data shown in this table?

n	$f(n)$
1	4
2	11
3	18
4	25
5	32

F $f(n) = 3n + 1$

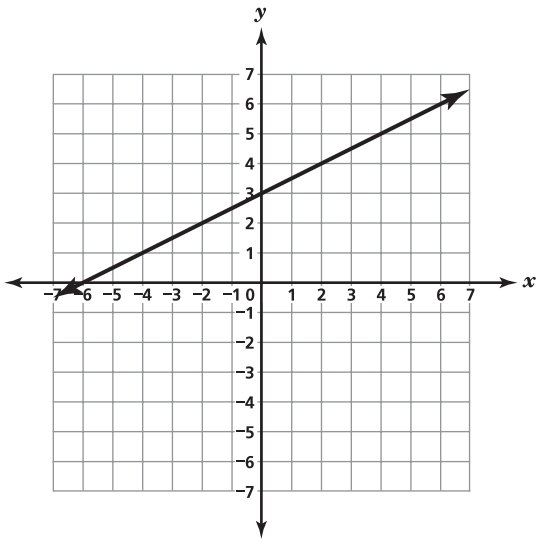
G $f(n) = 5n + 3$

H $f(n) = 6n - 1$

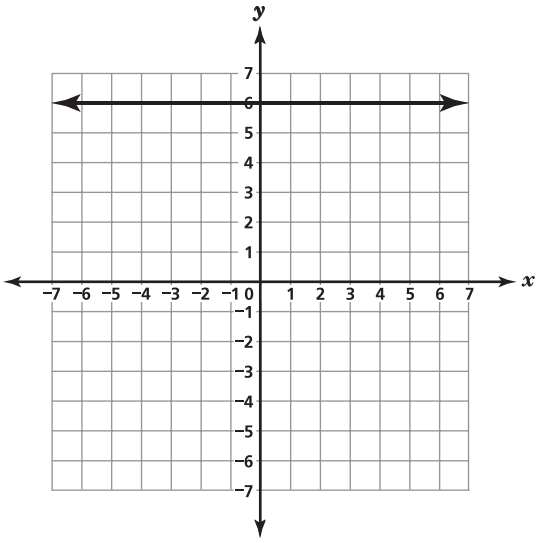
J $f(n) = 7n - 3$

Go On ▶

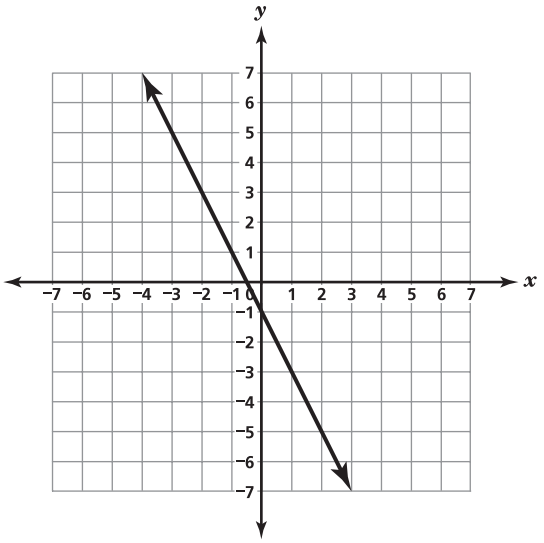
15 Which graph represents a relation that is not a function?



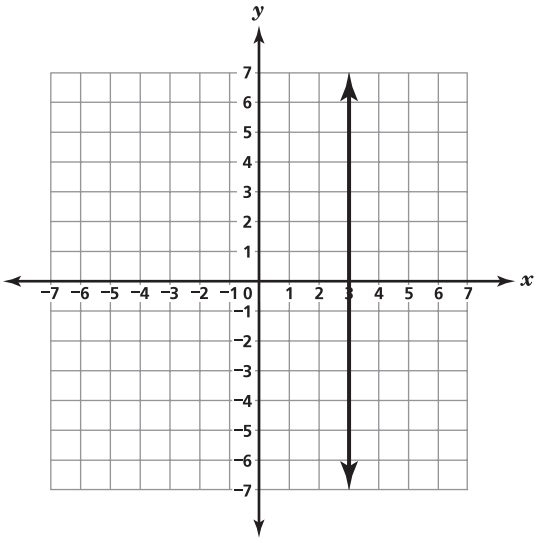
A



C



B



D

Go On ▶

16 $(x - k)(y - k) =$

F $xy - k^2$
G $xy + k^2$
H $xy - xk - ky + k^2$
J $xy + xk + ky - k^2$

17 Simplify the expression below and state all restrictions on the domain.

$$\frac{x^2 - 11x + 28}{x^2 - 4x - 21}$$

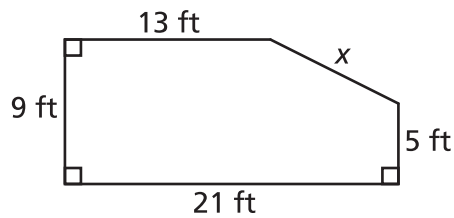
A $\frac{x + 4}{x - 3}$, $x \neq -7$ and $x \neq 3$

B $\frac{x + 4}{x - 3}$, $x \neq -4$ and $x \neq 3$

C $\frac{x - 4}{x + 3}$, $x \neq -3$ and $x \neq 7$

D $\frac{x - 4}{x + 3}$, $x \neq -3$ and $x \neq 4$

18 The diagram below shows the dimensions for the top surface of a patio.



What is the dimension, in feet (ft), represented by x?

F $4\sqrt{3}$
G $4\sqrt{5}$
H $4\sqrt{13}$
J $4\sqrt{17}$

Go On ▶

19 Katie rented a moving truck. The total rental cost included a one-time fee of \$40.00 and \$0.75 for each mile driven. Which equation represents t, the total cost in dollars of renting a truck that was driven n miles?

A $t = 40 + 0.75n$

B $t = 40 + \frac{0.75}{n}$

C $t = 0.75 + 40n$

D $t = 0.75 + \frac{40}{n}$

20 Marcel has a data set for which the mean is 33. Each value in the data set is multiplied by 5. What is the mean for the new data set?

F 5

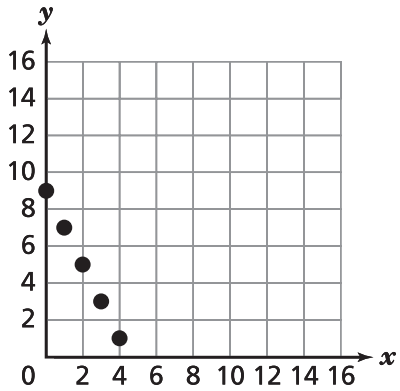
G 33

H 132

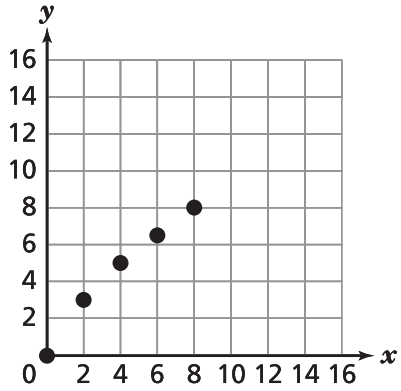
J 165

Go On ▶

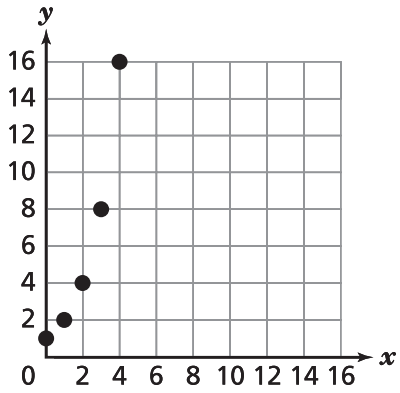
21 Which scatterplot best represents a negative linear relationship between the variables x and y?



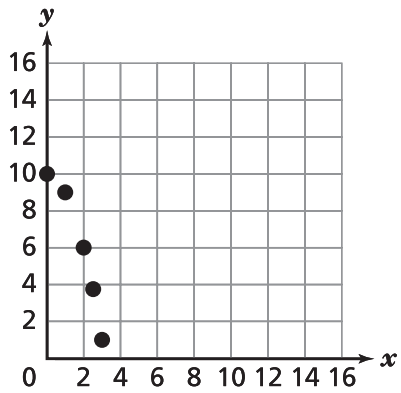
A



C



B



D

Go On ▶

22 A lawn can be mowed at an average rate of 44 square feet per minute. Which is closest to this rate in square yards per second?

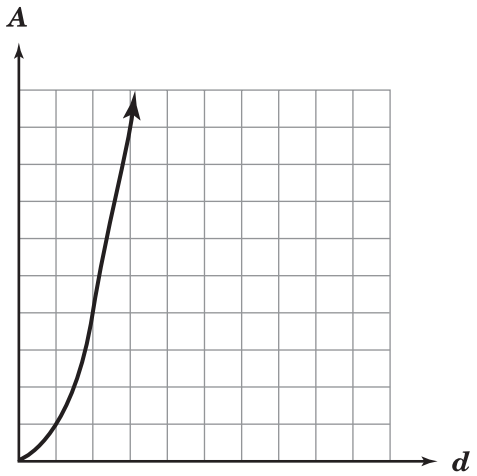
F 0.01
G 0.08
H 0.24
J 0.31

23 Which expression is equivalent to $\left(\sqrt{2x^2}\right)^4$?

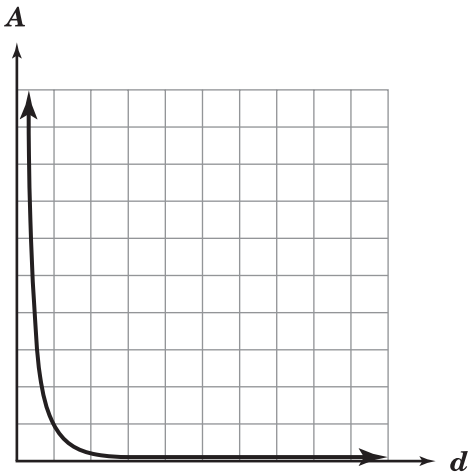
A $2x^4$
B $4x^4$
C $4x^8$
D $8x^8$

Go On ▶

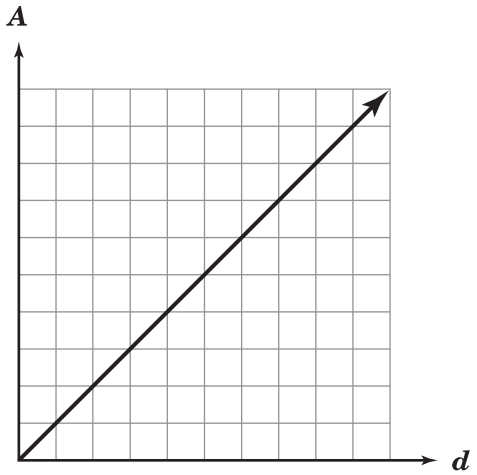
24 The function $A = \frac{\pi d^2}{4}$ shows the relationship between the area, A, of a circle and its diameter, d. Which graph best represents this relationship?



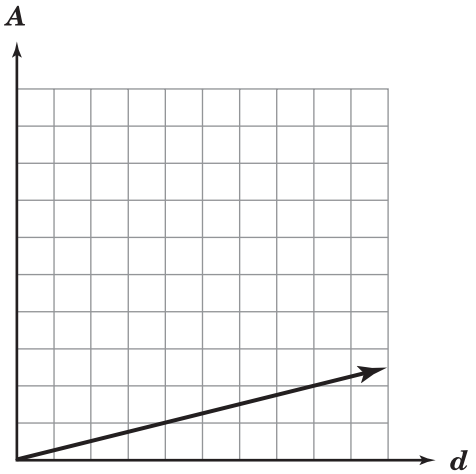
F



H



G



J

25 This table shows the number of cans placed in a collection bin during a food drive.

Food Drive Results

Type of Food	Number of Cans
Vegetable	2,578
Fruit	1,359
Meat	1,240
Sauce	580

One can will be randomly selected from the bin. Which is closest to the probability that the can selected will contain fruit or sauce?

A 0.10
B 0.24
C 0.34
D 0.66

26 Which function represents the linear pattern shown in the table?

x	$f(x)$
1	–2
2	1
3	4
4	7

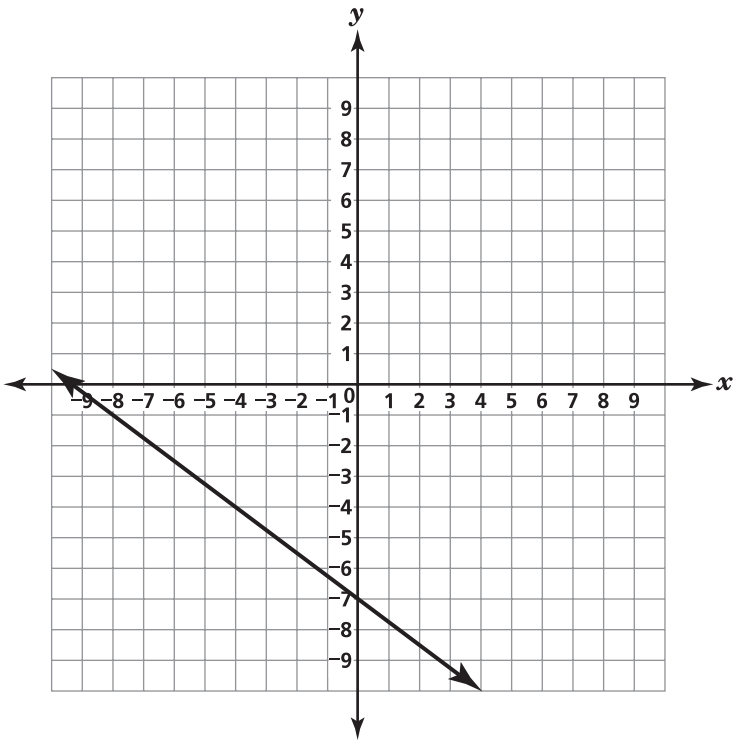
F $f(x) = 3x - 5$
G $f(x) = 2x - 4$
H $f(x) = x + 3$
J $f(x) = x + 1$

27 **Simplify:** $2x^4(3x^3 - x^2 + 5x)$

A $6x^7 - x^2 + 5x$
B $6x^{12} - x^2 + 5x$
C $6x^7 - 2x^6 + 10x^5$
D $6x^{12} - 2x^8 + 10x^4$

Go On ▶

28 Which equation best represents the graph of the line?



F $y = \frac{4}{3}x - 7$

G $y = \frac{3}{4}x - 7$

H $y = -\frac{4}{3}x - 7$

J $y = -\frac{3}{4}x - 7$

29 Marta is buying a car from her sister for \$12,294. After making an initial payment of \$1,200, she agrees to pay \$258 per month for n months. Which equation can Marta use to determine the number of months, n, it will take her to finish paying for the car?

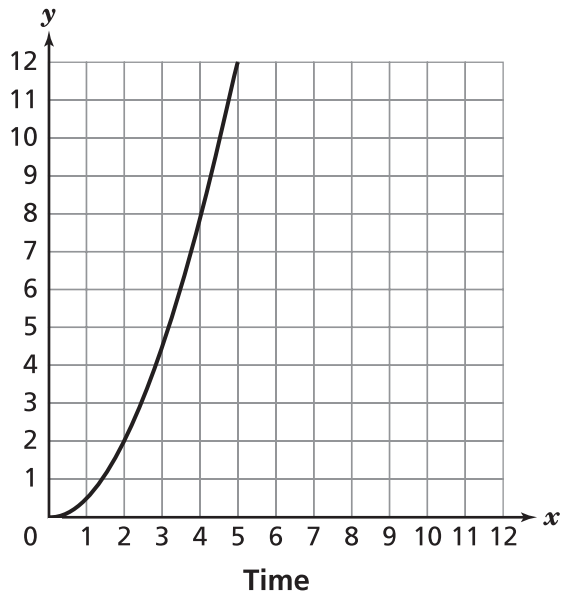
A $1{,}200n + 258 = 12{,}294$

B $1{,}200 + 258n = 12{,}294$

C $\frac{(1{,}200 + 258)}{n} = 12{,}294$

D $\frac{(1{,}200 - 258)}{n} = 12{,}294$

30 The graph represents a function related to a train's movement over time.



Which function could this graph represent?

F the speed of a train as it decreases its rate of acceleration

G the speed of a train as it slows down when approaching a station

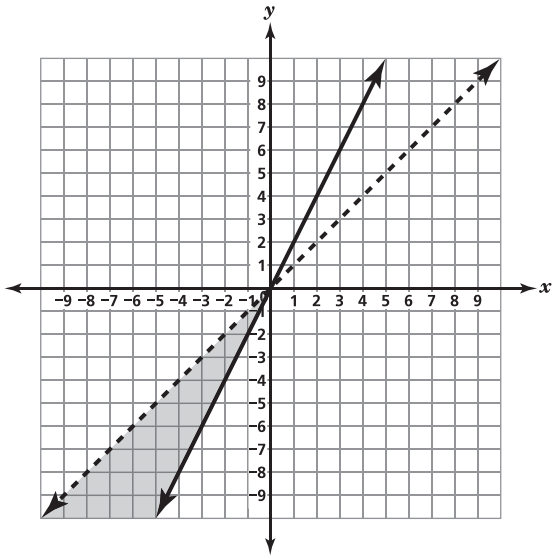
H the distance of a train from a station it has departed as it accelerates

J the distance of a train from a station it approaches at a constant speed

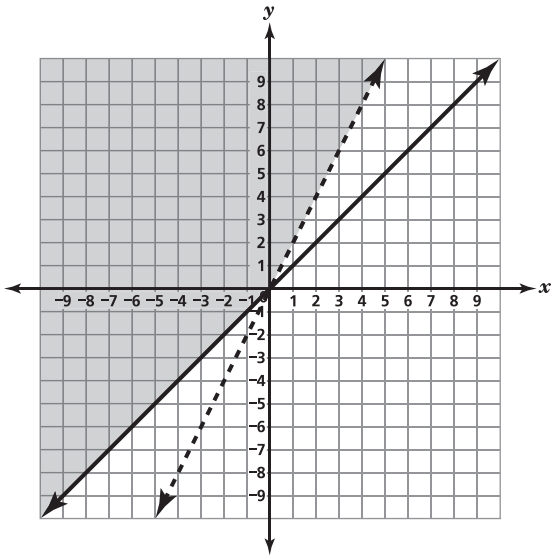
Go On ▶

31 Which graph best represents the solution to the system of linear inequalities?

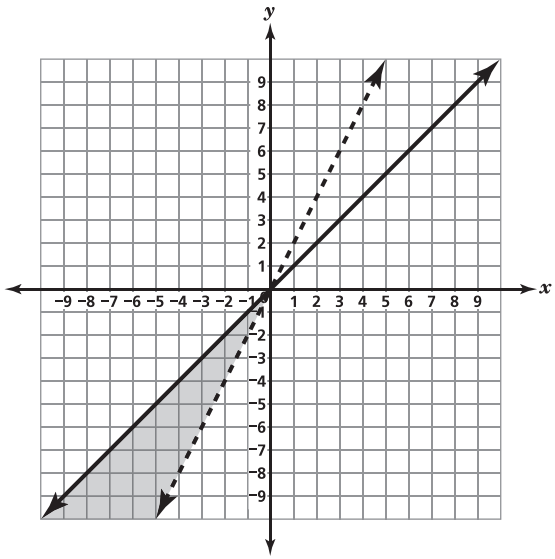
$$x - y < 0$$
$$3y - 6x \geq 0$$



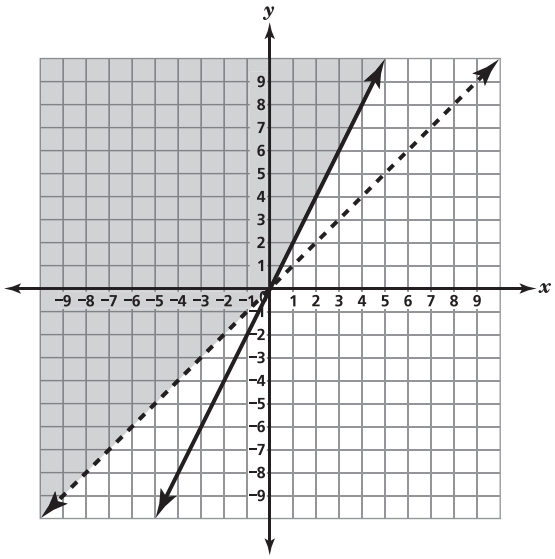
A



C



B



D

32 This table shows the number of tickets remaining in the first six rows of a theater for an upcoming concert.

Concert Tickets Remaining

Row	Number of Tickets
A	3
B	2
C	4
D	4
E	6
F	5

On the day of the concert, the number of remaining tickets in Row A decreases by 1, while the number of remaining tickets in Row F decreases by 3. What is the effect of these changes on the mode of the data?

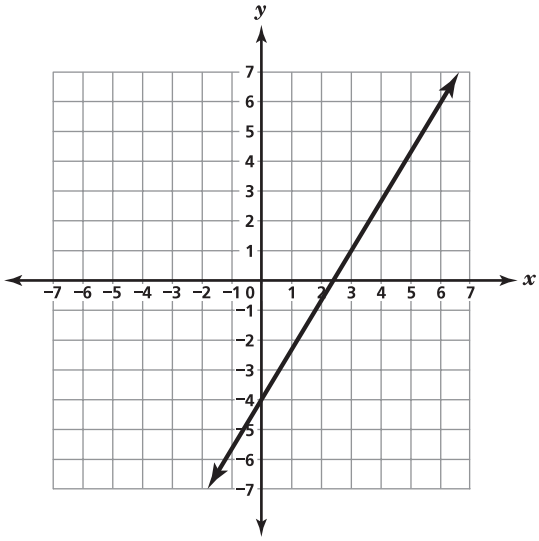
F The mode decreases by 2.

G The mode decreases by 1.

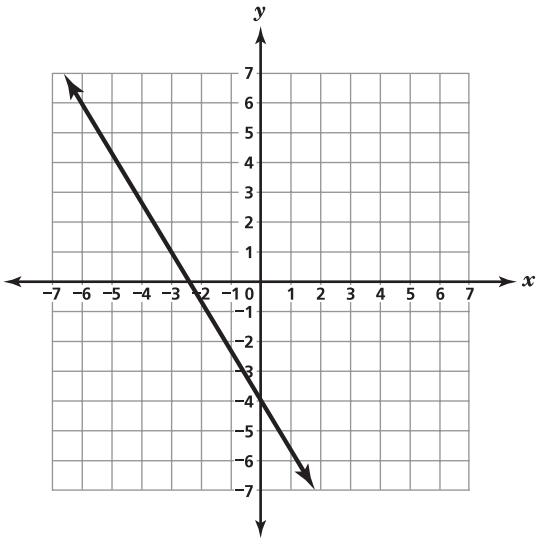
H The mode increases by 2.

J The mode increases by 1.

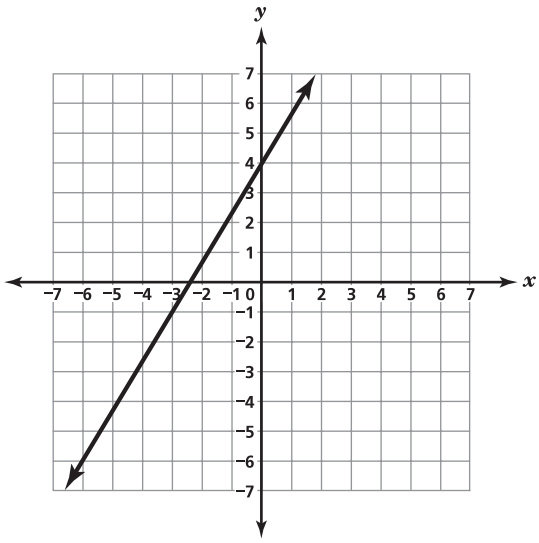
33 Which graph best represents the equation $5x - 3y = 12$?



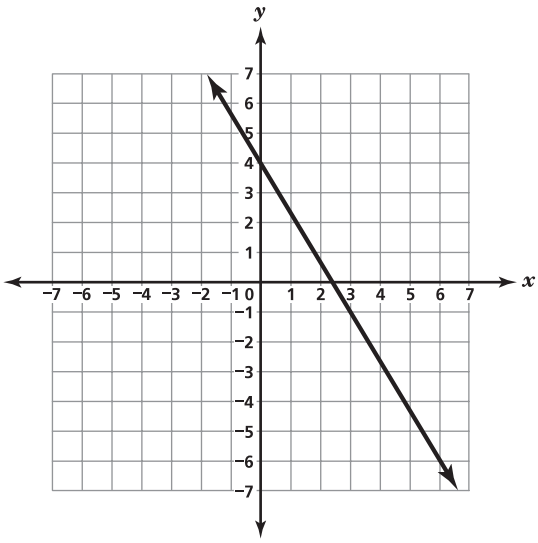
A



C

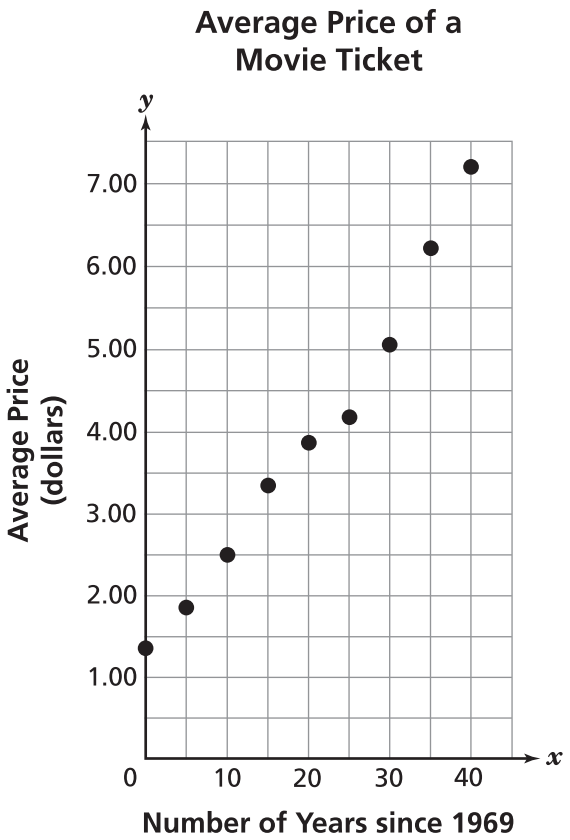


B



D

34 The average price of a movie ticket, over a period of several years, is shown in the graph below.



If the trend continues, what is the best prediction of the average price of a movie ticket in 2024?

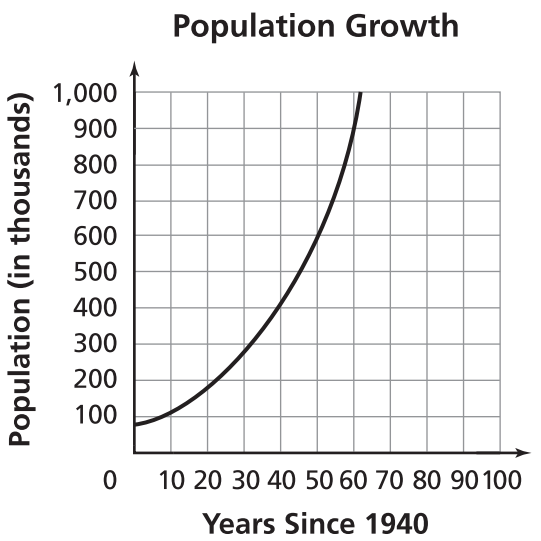
F $4.20
G $6.90
H $8.85
J $10.95

35 Which ordered pair, (x, y), represents the solution for the system of equations?

$$2.5x + 7.5y = 75$$
$$x + y = 12$$

A (3, 9)
B (9, 3)
C (2, 10)
D (10, 2)

36 The graph shows the growth in population for a city since 1940.



Which best describes the population for the year 2000?

F less than 100,000
G about 180,000
H about 900,000
J more than 1,000,000

Go On ▶

37 At the beginning of year 1, Katherine deposits $100 in an account that pays 5% interest compounded annually. She makes no other deposits or withdrawals. The amount in the account at the beginning of each year is shown in the table.

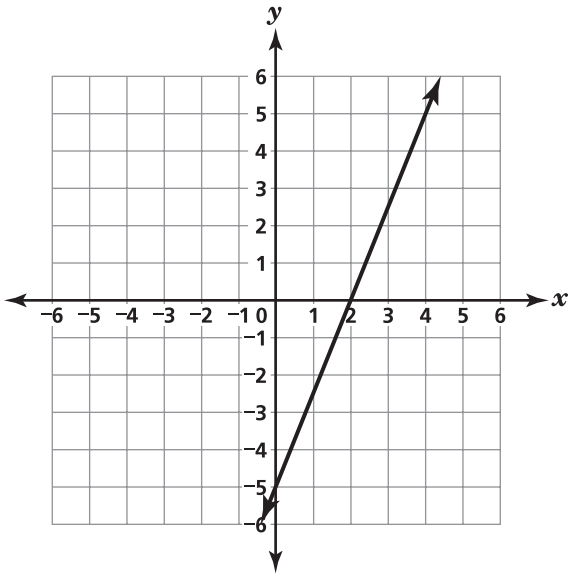
Katherine's Account

Year, *n*	Amount in Account, *A*(n)
1	100
2	100(1.05)
3	$100(1.05)^2$
4	$100(1.05)^3$

Which function represents $A(n)$, the amount in Katherine's account at the beginning of year *n*?

A $A(n) = 100$
B $A(n) = 100(1.05)^{n-1}$
C $A(n) = 100(1.05)^{n}$
D $A(n) = 100(1.05)^{n+1}$

38 Which equation best represents the line shown?



F $y = 0.4x - 5$
G $y = 0.4x + 2$
H $y = 2.5x - 5$
J $y = 2.5x + 2$

39 Which number is a solution to $3x - 19 > 5x - 7$ or $6x - 27 > 30 + 3x$?

A -19
B -5
C 5
D 19

Go On ▶

40 The table shows the 2008 United States first-class postage rate, $d(w)$, for packages of maximum weight, w.

Postage Rate for Packages in 2008

Maximum Weight in Ounces, w	Postage Rate, $d(w)$
1	\$1.17
2	\$1.34
3	\$1.51
4	\$1.68
5	\$1.85
6	\$2.02
7	\$2.19
8	\$2.36
9	\$2.53
10	\$2.70

The pattern in the table continues. Which value represents the postage rate of a 13-ounce package?

F \$2.21
G \$2.87
H \$3.21
J \$4.21

41 Carlos and Amanda played a game. This table shows the results.

Game Results

Result	Frequency
Carlos wins	4
Amanda wins	5
Tie	3

What is the experimental probability that there will be a tie between Carlos and Amanda?

A $\frac{1}{4}$

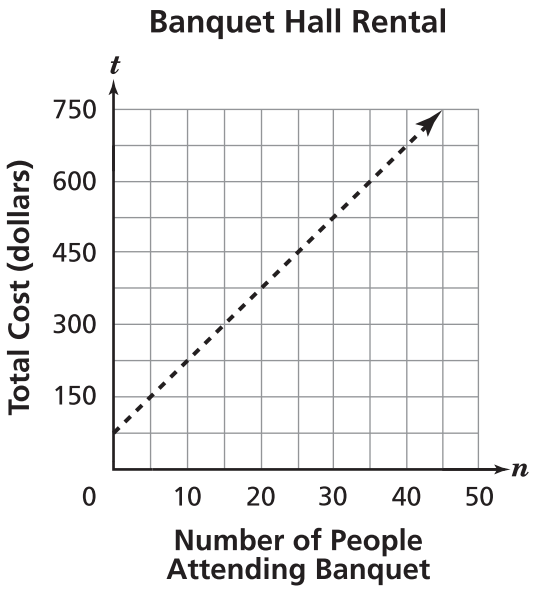
B $\frac{1}{3}$

C $\frac{5}{12}$

D $\frac{3}{4}$

Go On ▶

42 The total cost for renting a banquet hall includes a one-time rental fee and a cost per person attending the banquet. The relationship between n, the number of people attending the banquet, and t, the total cost, is shown on the graph.



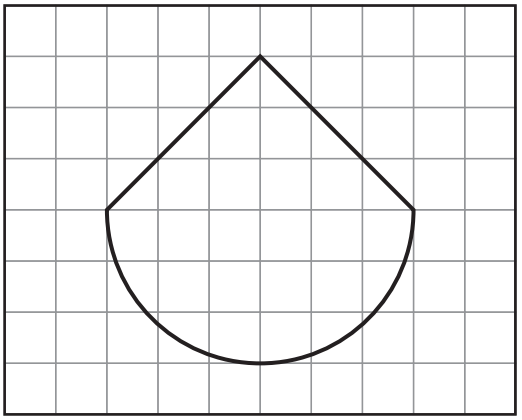
Which equation best represents the relationship between n and t?

F $t = -15n + 75$
G $t = -15n - 75$
H $t = 15n + 75$
J $t = 15n - 75$

43 If $x > -\frac{5}{2}$, which expression is equivalent to $\frac{2x^2 + 7x + 5}{\sqrt{4x^2 + 20x + 25}}$?

A $x + 1$
B $x + 7$
C $-2x^2 - 13x - 20$
D $-2x^2 - 27x - 30$

44 Which is closest to the area of the figure?

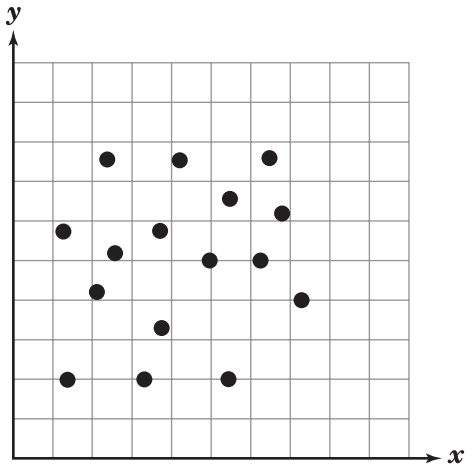


= 1 square unit

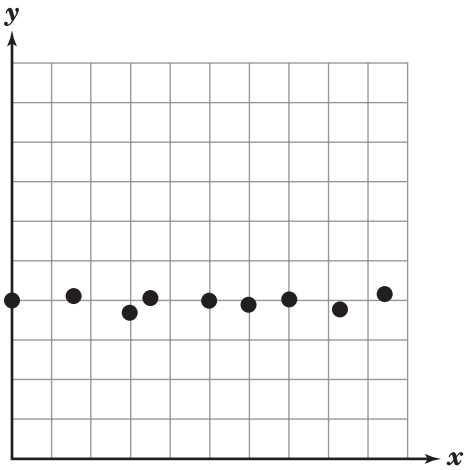
F 18 square units
G 23 square units
H 32 square units
J 37 square units

Go On ▶

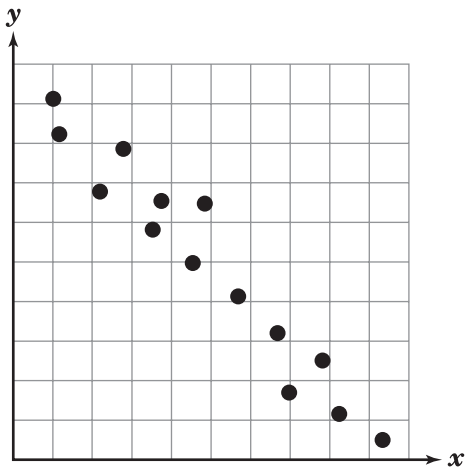
45 Which graph best shows a positive linear relationship between the variables x and y?



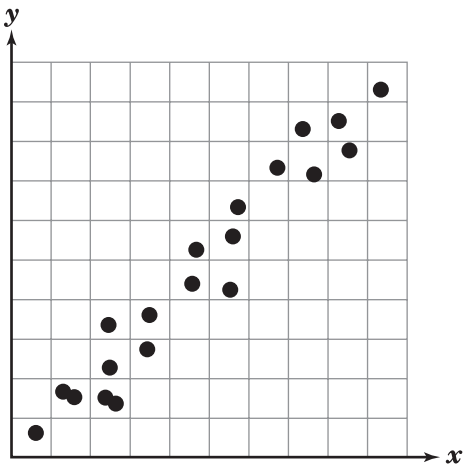
A



C



B



D

Go On ▶

46 This set of data includes the scores that James earned on his last 6 math tests.

$$\{90, 86, 75, 95, 100, 70\}$$

If the lowest score is dropped, which statement is true?

F The range will decrease by 10 points.

G The median score will increase by 2 points.

H The median score will increase by 5 points.

J The mean score will decrease by 3.2 points.

47 The distance in miles, y, a bicyclist is from home after riding x hours is represented by the equation $y = 8x + 7$. What does the slope represent in this situation?

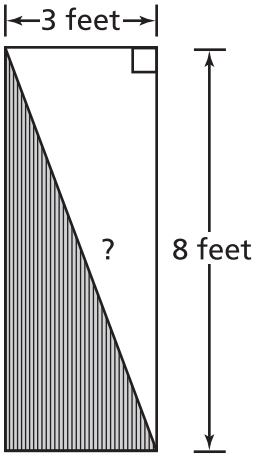
A the number of hours it takes the bicyclist to ride 15 miles

B the distance the bicyclist is from home when $x = 0$

C the steepness of the hill the bicyclist is climbing

D the speed of the bicyclist

48 Ernest plans to paint a small rectangular wall in his apartment as shown.



Which is closest to the length, in feet, of the diagonal strip that separates the two colors?

F 5 feet

G 9 feet

H 11 feet

J 25 feet

Go On ▶

49 Which is an equivalent form for all values of x, y, and z for which the expression is defined?

$$\frac{3x^6y^2z^9}{12x^3y^4z^3}$$

A $\frac{x^2z^3}{4y^2}$

B $\frac{x^3z^6}{4y^2}$

C $\frac{4x^2z^3}{y^2}$

D $\frac{4x^3z^6}{y^2}$

50 Which values of x make the equation true?

$$x^2 + x - 12 = 0$$

F -6 and 2
G -4 and 3
H -3 and 4
J -2 and 6

51 What is the value of the function $f(x) = x^2 - 2x + 2$ when $x = -3$?

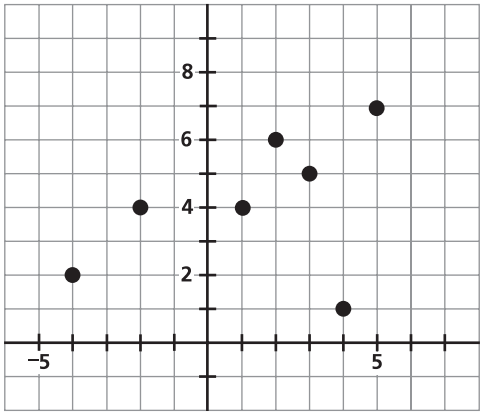
A -13
B -1
C 2
D 17

52 A sequence is created from the function $k(n) = 3n + 1$, where n represents the position of the term in the sequence. The sequence does not begin at 0. Which list represents the first five terms of the sequence?

F 5, 6, 7, 8, 9
G 4, 7, 10, 13, 16
H 4, 7, 11, 18, 29
J 6, 9, 12, 15, 18

Go On ▶

53 Which set represents the relation shown on the graph?



A $\{1, 2, 4, 5, 6, 7\}$

B $\{-4, -2, 1, 2, 3, 4, 5\}$

C $\{(-4, 2), (-2, 4), (1, 4), (2, 6), (3, 5), (4, 1), (5, 7)\}$

D $\{(2, -4), (4, -2), (4, 1), (6, 2), (5, 3), (1, 4), (7, 5)\}$

54 Which transformation occurs to the graph of $y = x + 1$ when the equation of the line changes to $y = -x + 1$?

F The line is reflected across the y-axis.
G The line is reflected across the x-axis.
H The line shifts to the left 1 unit.
J The line shifts down 1 unit.

55 Which compound inequality represents $|6 - 3n| \leq 27$?

A $-27 \leq 6 - 3n \geq 27$
B $-27 \leq 6 - 3n \leq 27$
C $27 \geq 6 - 3n \leq -27$
D $27 \leq 6 - 3n \leq -27$

56 Simplify $(x^2 - x - 2)\left(\frac{x^2 + x - 2}{x^2 - 4}\right)$ for all values of x for which the expression is defined.

F $x^2 - 1$
G $x^2 + 1$
H $x^2 + 2x - 1$
J $x^2 - 2x + 1$

57 The distance from Earth to Pluto is approximately 4.3×10^{12} meters. The diameter of Earth is approximately 1.2×10^{7} meters. Approximately how many times the diameter of Earth is the distance from Earth to Pluto?

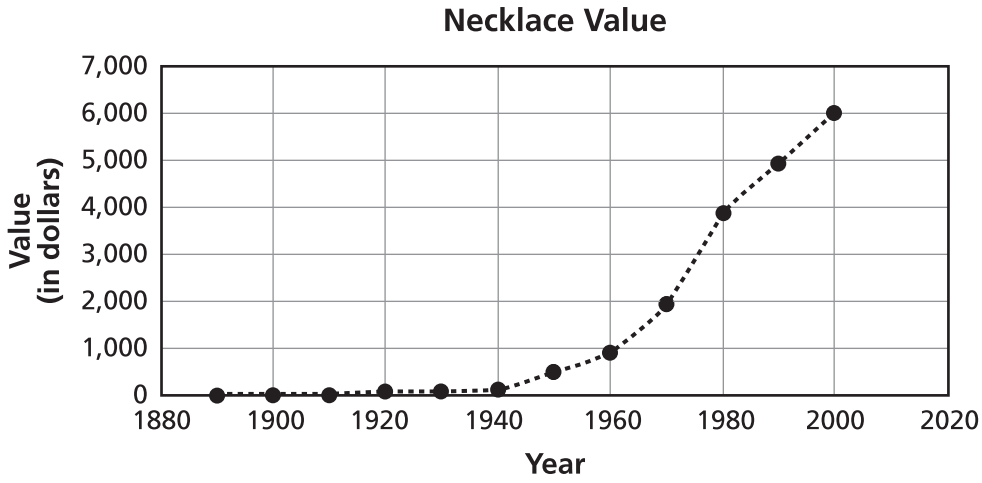
A 0.28
B 3.60
C 2.8×10^{4}
D 3.6×10^{5}

58 What is the sum of $k^3 + 2k^2 + 1$ and $3k^2 - 4$?

F $k^3 + 5k^2 - 5$
G $k^3 + 5k^2 - 3$
H $4k^3 + 2k^2 - 5$
J $4k^3 + 2k^2 - 3$

Go On ▶

59 The graph shows the value of a necklace over many years.



What is a reasonable estimate of the value of the necklace in 1982?

A $1,970
B $3,500
C $4,000
D $5,000

60 Which number correctly completes this equation?

12 square feet = ___ square inches

F 144
G 288
H 1,728
J 6,912

61 Which statement best describes the values of the numbers in this set?

$$\left\{\sqrt{\frac{25}{3}}, \sqrt{\frac{36}{5}}, \sqrt{\frac{49}{8}}\right\}$$

A They are between 1 and 2.
B They are between 2 and 3.
C They are between 3 and 4.5.
D They are between 4.5 and 8.

62 Gladys wants to buy a pair of pants that cost \$35 before a 20% discount. She knows she can find the cost after the discount, in dollars, by evaluating $35 - 35(0.20)$. She thinks she can get the same cost by evaluating $35(1 - 0.20)$. What property did Gladys use to justify that these two expressions represent the same cost after the discount?

F associative property
G distributive property
H commutative property
J subtraction property of equality

Go On ▶

63 Which expression is equivalent to $\frac{3x}{\sqrt{3}}$?

A x

B $\frac{x}{3}$

C $\frac{x\sqrt{3}}{3}$

D $x\sqrt{3}$

64 What is the length of a segment whose endpoints are $(3, -2)$ and $(7, 6)$?

F $2\sqrt{21}$
G $2\sqrt{29}$
H $4\sqrt{3}$
J $4\sqrt{5}$

65 Which expression is equivalent to $n^2 + 20n + 100$?

A $(n + 10)(n + 10)$
B $(n - 10)(n - 10)$
C $(n + 20)(n + 5)$
D $(n - 20)(n - 5)$

STOP

Answer Key

Item Number	Correct Answer
1	C
2	F
3	B
4	G
5	D
6	J
7	D
8	G
9	D
10	H
11	A
12	J
13	C
14	J
15	D
16	H
17	C
18	G
19	A
20	J
21	A
22	G

Item Number	Correct Answer
23	B
24	F
25	C
26	F
27	C
28	J
29	B
30	H
31	D
32	F
33	A
34	H
35	A
36	H
37	B
38	H
39	A
40	H
41	A
42	H
43	A
44	G

Item Number	Correct Answer
45	D
46	G
47	D
48	G
49	B
50	G
51	D
52	G
53	C
54	F
55	B
56	F
57	D
58	G
59	C
60	H
61	B
62	G
63	D
64	J
65	A

Reporting Categories

Below you will find that each item has been linked to its corresponding Reporting Category. These five Reporting Categories will be used to report scores from the actual test.

You can find the Reporting Categories and their Performance Indicators grouped together in the Tennessee End of Course Item Sampler for Algebra I located on the Tennessee Department of Education Web site at http://tennessee.gov/education/assessment/sec_samplers.shtml.

Item	Reporting Category
1	3 – Algebra
2	4 – Geometry and Measurement
3	2 – Number and Operations
4	1 – Mathematical Processes
5	2 – Number and Operations
6	4 – Geometry and Measurement
7	5 – Data Analysis, Statistics, and Probability
8	3 – Algebra
9	2 – Number and Operations
10	3 – Algebra
11	3 – Algebra
12	1 – Mathematical Processes
13	3 – Algebra
14	1 – Mathematical Processes
15	3 – Algebra
16	3 – Algebra
17	3 – Algebra
18	4 – Geometry and Measurement
19	1 – Mathematical Processes
20	5 – Data Analysis, Statistics, and Probability
21	5 – Data Analysis, Statistics, and Probability
22	4 – Geometry and Measurement

Item	Reporting Category
23	2 – Number and Operations
24	1 – Mathematical Processes
25	5 – Data Analysis, Statistics, and Probability
26	3 – Algebra
27	1 – Mathematical Processes
28	3 – Algebra
29	1 – Mathematical Processes
30	3 – Algebra
31	3 – Algebra
32	5 – Data Analysis, Statistics, and Probability
33	3 – Algebra
34	5 – Data Analysis, Statistics, and Probability
35	3 – Algebra
36	3 – Algebra
37	3 – Algebra
38	3 – Algebra
39	3 – Algebra
40	1 – Mathematical Processes
41	5 – Data Analysis, Statistics, and Probability
42	1 – Mathematical Processes
43	2 – Number and Operations
44	4 – Geometry and Measurement
45	5 – Data Analysis, Statistics, and Probability
46	5 – Data Analysis, Statistics, and Probability
47	1 – Mathematical Processes
48	4 – Geometry and Measurement
49	3 – Algebra
50	3 – Algebra
51	3 – Algebra
52	1 – Mathematical Processes
53	3 – Algebra

Item	Reporting Category
54	1 – Mathematical Processes
55	3 – Algebra
56	3 – Algebra
57	2 – Number and Operations
58	3 – Algebra
59	5 – Data Analysis, Statistics, and Probability
60	4 – Geometry and Measurement
61	2 – Number and Operations
62	1 – Mathematical Processes
63	2 – Number and Operations
64	4 – Geometry and Measurement
65	3 – Algebra

End of Course Assessment

Algebra I

PRACTICE TEST

TN00004422

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