SpiralEd Solutions

Algebra I Spirals

SpiralEd Solutions
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SpiralEd Solutions

Spiral 1

1 (A.10A)

Which expression is equivalent to (8 + x) - (7 - 2x) - (4x - 5)?

A -x + 6

B 2x – 6

C x + 8

D x – 12

2 (A.10A)

Which expression is equivalent to $(4 – 8x) + (5x^2 – 5x) + (4 + x)$?

F $4x^2 – 12x – 9$

G $5x^2 – 12x + 8$

H $5x^2 + 12x – 8$

J $4x^2 – 12x + 9$

3 (A.10A)

Which expression is equivalent to $(6x + x^2) – (x^2 + 7x) – (8x^2 – 6)$?

A $8x^2 – 8x – 6$

B $-6x^2 + 5x$

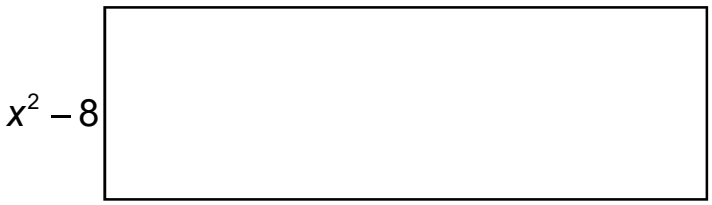
C $-8x^2 – x + 6$

D $8x^2 + 3$

Spiral 2

1 (A.10A)

The length and width of a rectangle are shown below. Which expression is equivalent to the perimeter of the rectangle?



F $3x^2 + 3x - 12$

G $6x^2 + 6x - 24$

H $4x^2 + 8x - 24$

J $2x^2 + 4x - 12$

2 (A.10A)

Which expression is equivalent to $(6 - 4x^2) + (7 + 5x^2) + (6 - 4x^2)$?

A $-x^2+17$

B $3x^2 - 9$

C $-2x^2+12$

D $-3x^2+19$

3 (A.10D)

Which expression is equivalent to -5(1 + 7x) + 3(3 + 4x)?

F -15 – 8x

G -23 – 2x

H 4 – 23x

J 23x – 2

Spiral 3

1 (A.10D)

Which expression is equivalent to -3(x + 1) + 9(1 – 3x)?

A -28x + 4

B -30x + 6

C 27x – 15

D -4 – 28x

2 (A.10D)

Which expression is equivalent to -8(1 + x) – 2(-6x – 2)?

F -4 + 4x

G -8 – 3x

H 4x + 8

J 3x – 4

3 (A.5A)

What value of x makes the equation $-4(x-4)+x=8(-x-8)$ true?

A -8

B 4

C -16

D 24

Spiral 4

1 (A.10D)

Which expression is equivalent to $-(3x^2 + 2x - 7) - 3(x + 4)$?

F $3x^2 + 5x + 7$

G $-3x^2 - 5x + 5$

H $3x^2 + x - 12$

J $-3x^2 - 5x - 5$

2 (A.5A)

What value of x makes the equation $-4(x + 4) = 8(-x + 2)$ true?

A 8

B 2

C -16

D 12

3 (A.5A)

What value of x makes the equation $5(8 + 7x) = -2x + 5(-1 + 8x)$ true?

F 17

G -12

H -9

J 15

Spiral 5

1 (A.5A)

What value of x makes the equation $-5x-3(x+6)=5(3-x)$ true?

A 11

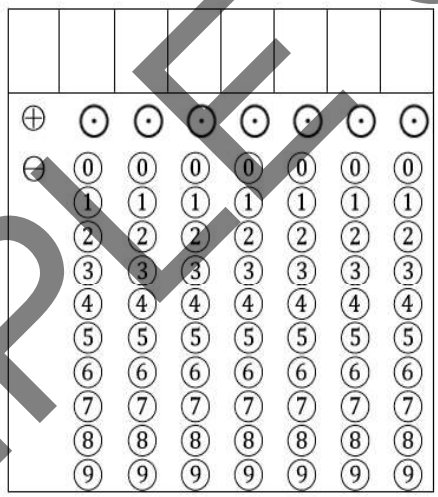
B -7

C -11

D 9

2 (A.5A)

What value of x makes the equation $-3(x+5)-8x=5(1-x)-8$ true? Record your answer and fill in the bubbles below.



3 (A.10D)

Which expression is equivalent to $-(4x^2-3x+6)+2(x^2-4)$?

A $-2x^2+3$

B $-2x^2+2x-11$

C $-2x^2+3x-14$

D $-6x^2+3x$

Spiral 6

1 (A.5A)

What value of x makes the equation $-(1+8x)-7x=-8(6x-4)$ true?

F 0

G 1

H -8

J 4

2 (A.5A)

What value of x makes the equation $-4(x-1)=2(2x-2)$ true?

A 1

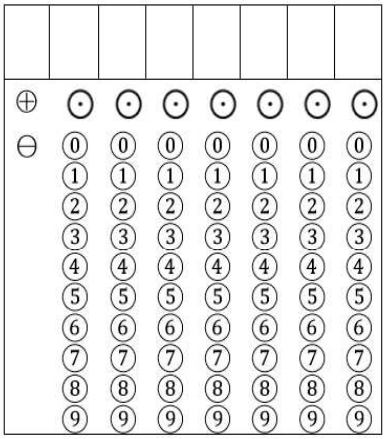
B 4

C 2

D -1

3 (A.5A)

What value of x makes the equation $2x-6x=8(x-1)-4(x+4)$ true?
Record your answer and fill in the bubbles below.



Spiral 7

1 (A.5A)

What value of x makes the equation $5(4+2x) = -(x-5)-7$ true?

A -1

B -3

C 7

D -2

2 (A.12A)

Which sets of points represent functions?

I. {(3,2), (-3,-2), (4,5), (-4,-5), (0,8)}

II. {(3,2), (3,-2), (4,5), (4,-5), (0,8)}

III. {(2,5), (-3,-5), (4,5), (8,-5), (0,8)}

IV. {(3,2), (-3,-2), (4,5), (4,-5), (3,8)}

F I, II, III, IV

G none

H I and III only

J I, II, and IV

3 (A.12A)

Which table does not represent a function?

A

x	y
-3	2
-1	4
1	6
3	8
5	10

B

x	y
-3	2
-1	4
-1	6
-3	8
-5	10

C

x	y
-3	4
-1	4
1	4
3	4
5	4

D

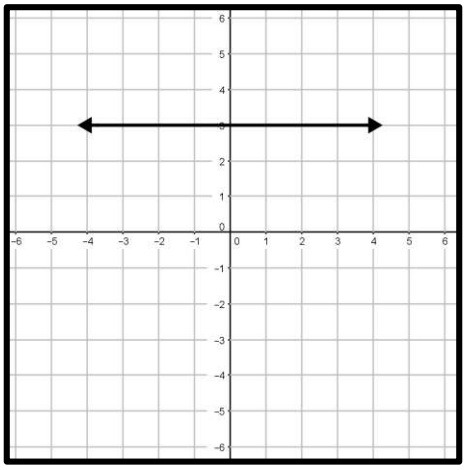
x	y
-3	-1
-1	-2
1	-3
3	-1
5	-2

Spiral 8

1 (A.12A)

Which representation shows a function?

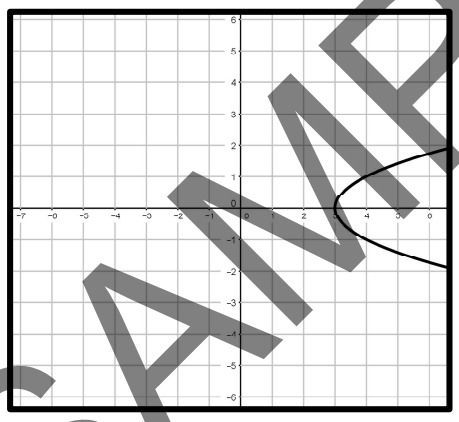
F



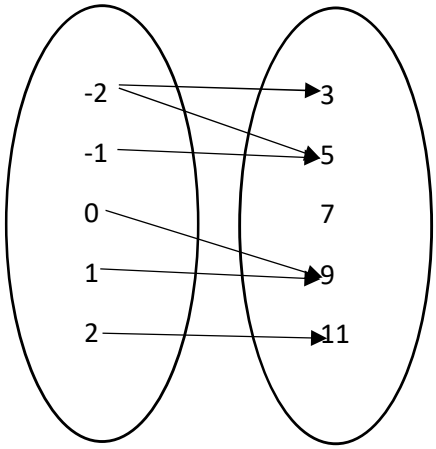
G

x	y
-3	2
-1	4
1	6
-1	8
-3	10

H



J



2 (A.5A)

What value of x makes the equation $5(x+1)=4(x+3)$ true?

A -5

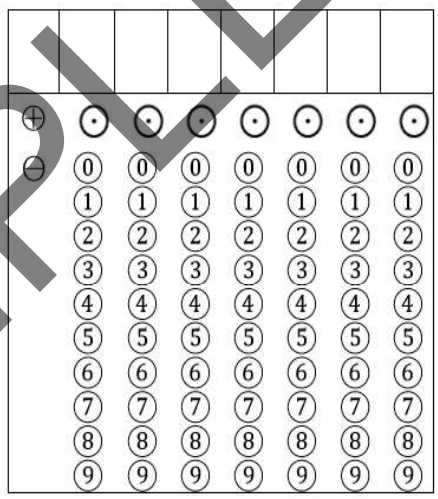
B 8

C -1

D 7

3 (A.12B)

Given $f(x)=4(x-2)$, what is the value of $f(-3)$? Record your answer and fill in the bubbles below.



Spiral 9

1 (A.12B)

Given $f(x) = \frac{1}{2}x - 4$, what is the value of $f(3)$?

A 3.5

B -2.5

C $-\frac{3}{2}$

D $\frac{5}{2}$

2 (A.12B)

Given $f(x) = 2(5 - 3x)$, what is the value of $f(-\frac{2}{3})$?

F 16

G $-\frac{3}{5}$

H 14

J 6

3 (A.12E)

The formula for perimeter of a rectangle is $P = 2(l + w)$. Which formula below shows the same function solved for w?

A $w = \frac{P}{2} - l$

B $w = l - \frac{P}{2}$

C $w = \frac{P - l}{2}$

D $w = \frac{P + l}{2}$

Spiral 10

1 (A.12E)

The formula for area of a triangle is $A = \frac{1}{2}bh$. Using this information, what would be the formula for the base of a triangle in relation to its area and height?

F $b = \frac{h}{2A}$

G $b = \frac{1}{2}A + b$

H $b = \frac{2A}{h}$

J $b = \frac{\frac{1}{2}h}{A}$

2 (A.12B)

If the domain of the function, $f(x) = 2(x - 6)$, is $\{-3, 2, 5, 8\}$, which term is included in the range?

A -12

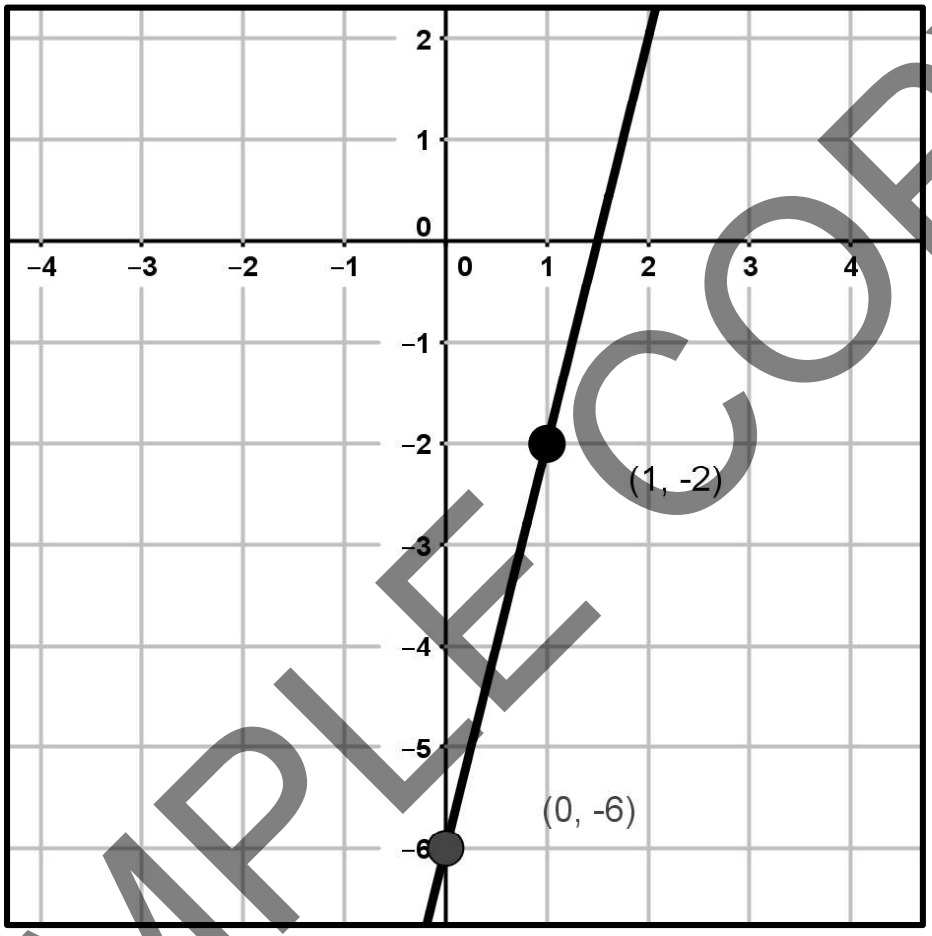
B -4

C 6

D -8

3 (A.3C)

What is the x-intercept of the line shown in the graph?



F $\frac{3}{2}$

G –1.5

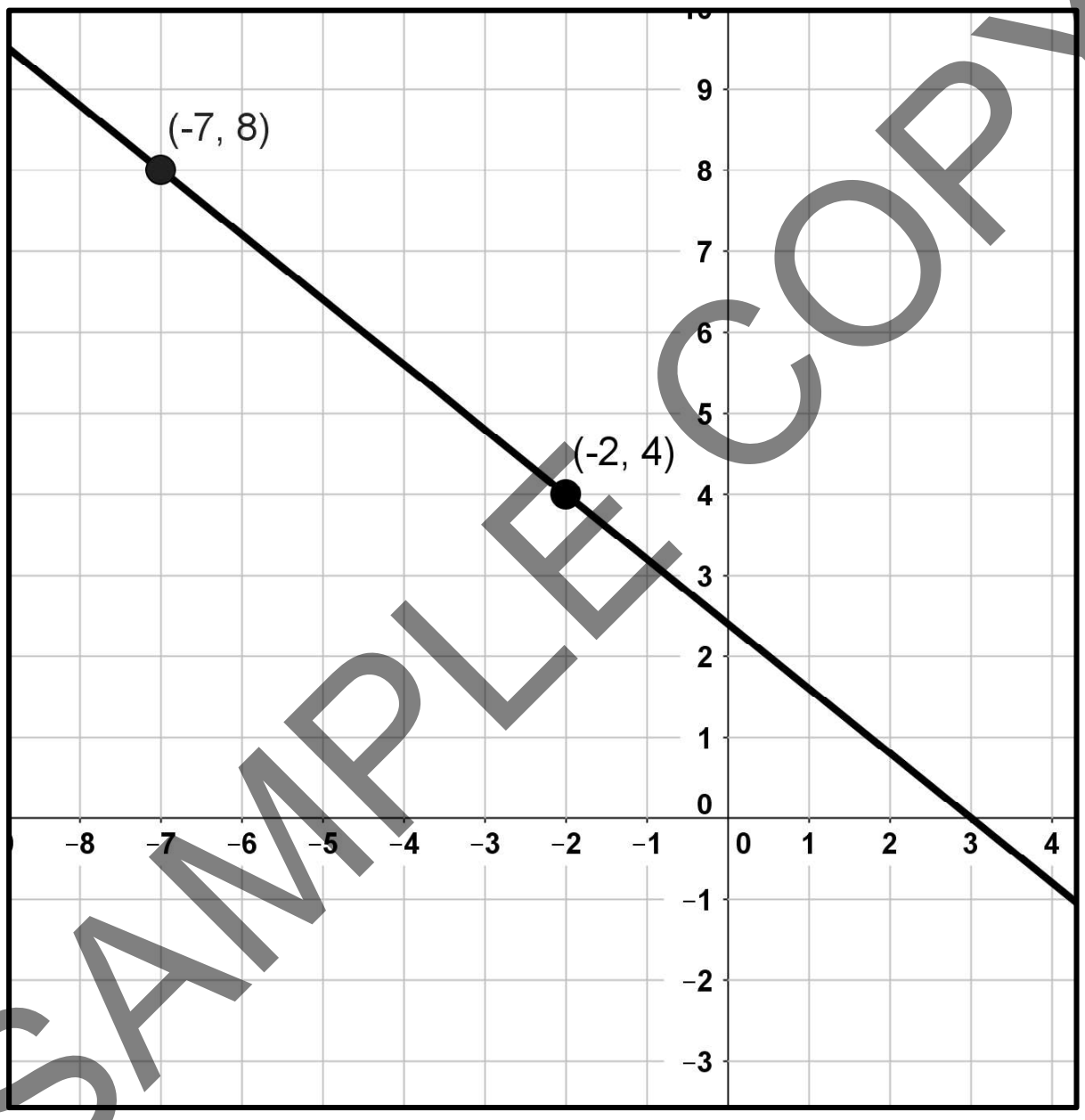
H –6

J (2,2)

Spiral 11

1 (A.3C)

What is the y-intercept of the line shown in the graph?



A 2.3

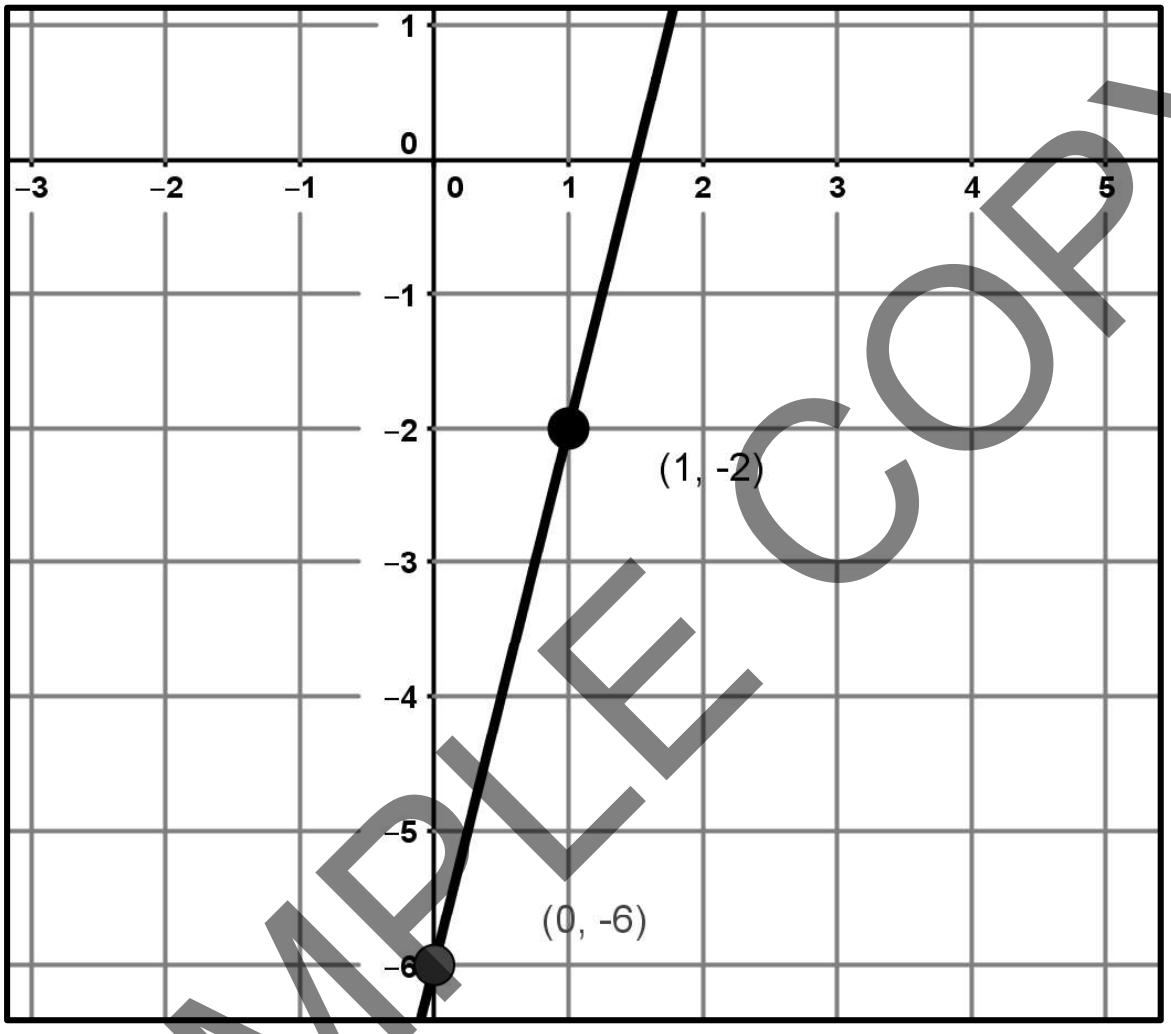
B 3

C 2.4

D -0.8

2 (A.3C)

Which function is represented by the line?



F $4x + y = 6$

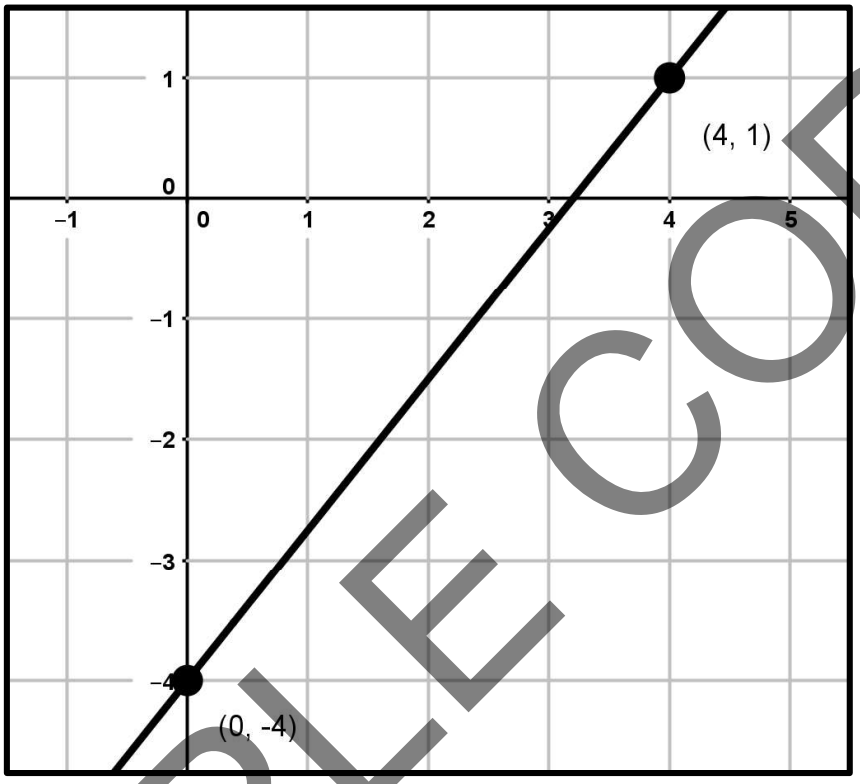
G $4x - y = -6$

H $4x - y = 6$

J $4x + y = -6$

3 (A.3C)

What is the x-intercept of the line graphed below?



A 4

B 3.2

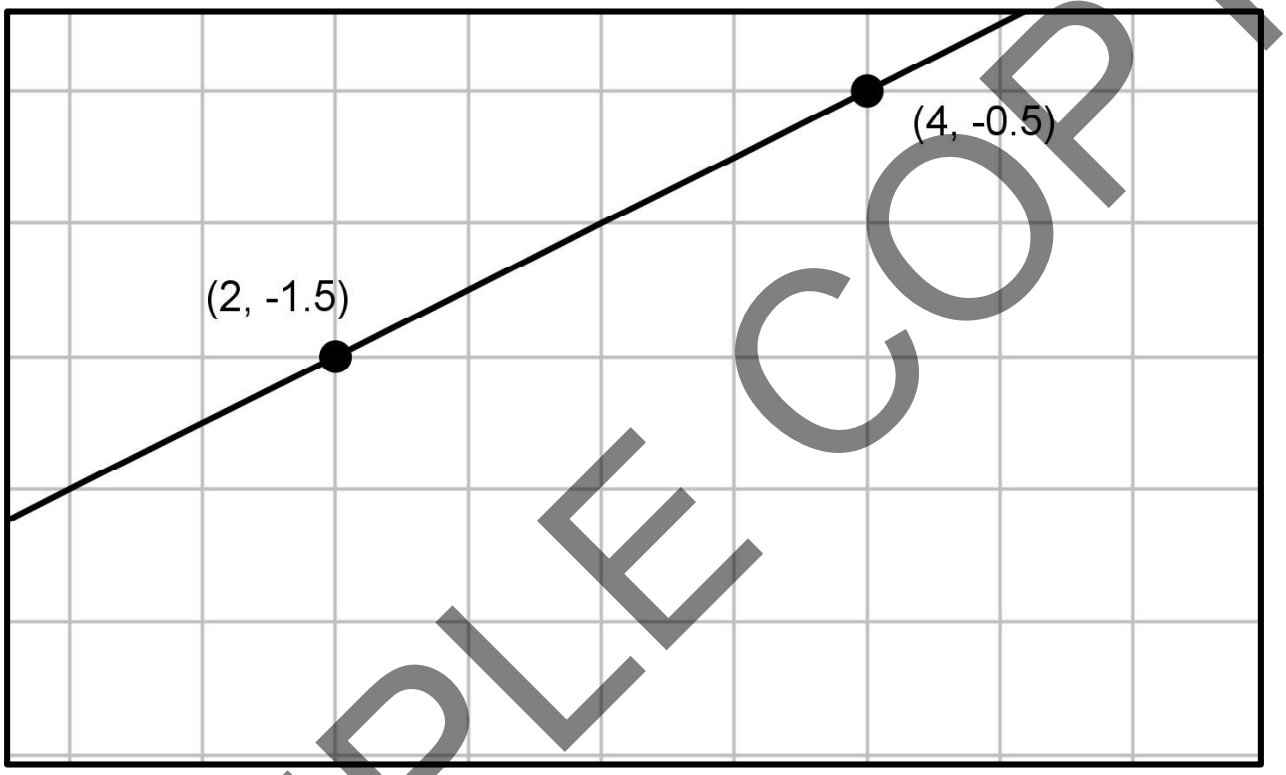
C $\frac{5}{4}$

D –4

Spiral 12

1 (A.3C)

What is the y-intercept of the line shown below?



F $\frac{1}{2}$

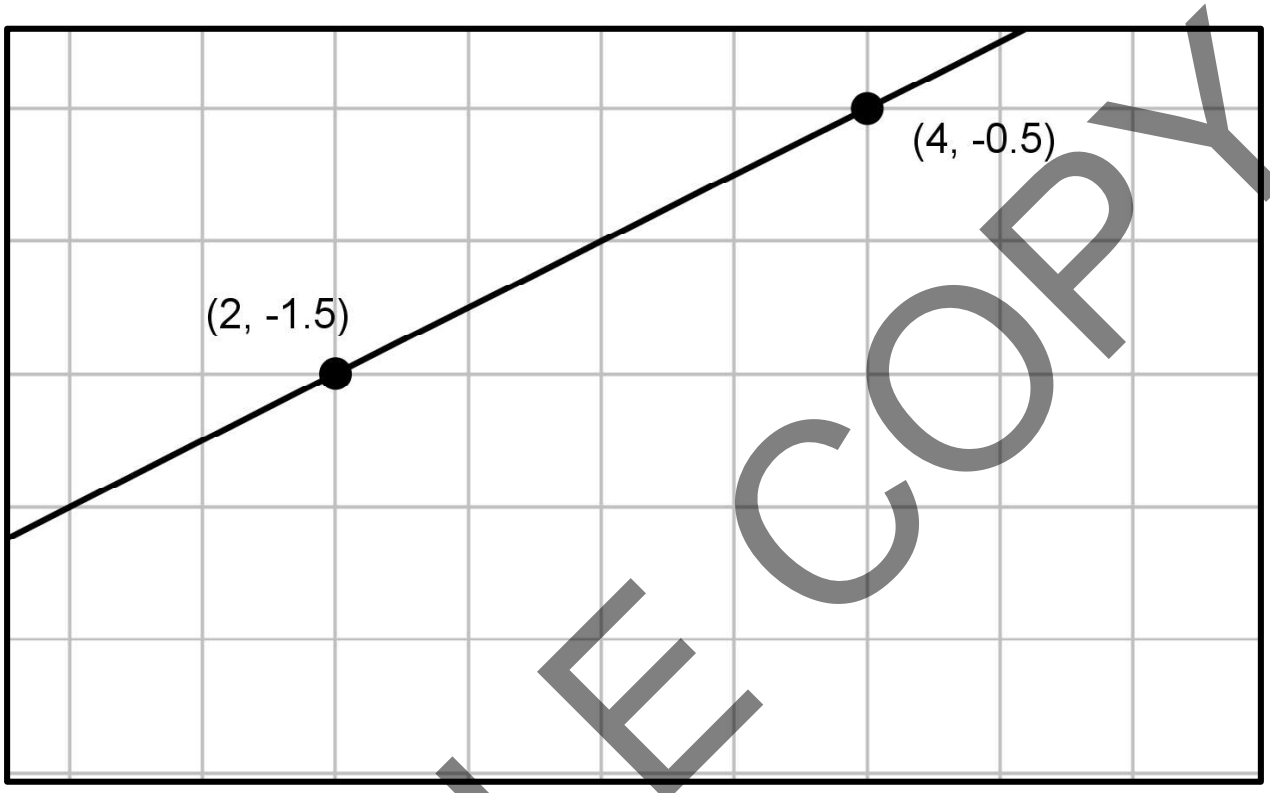
G 5

H –1.5

J $-\frac{5}{2}$

2 (A.3C)

What is the x-intercept of the line shown below?



A $\frac{1}{2}$

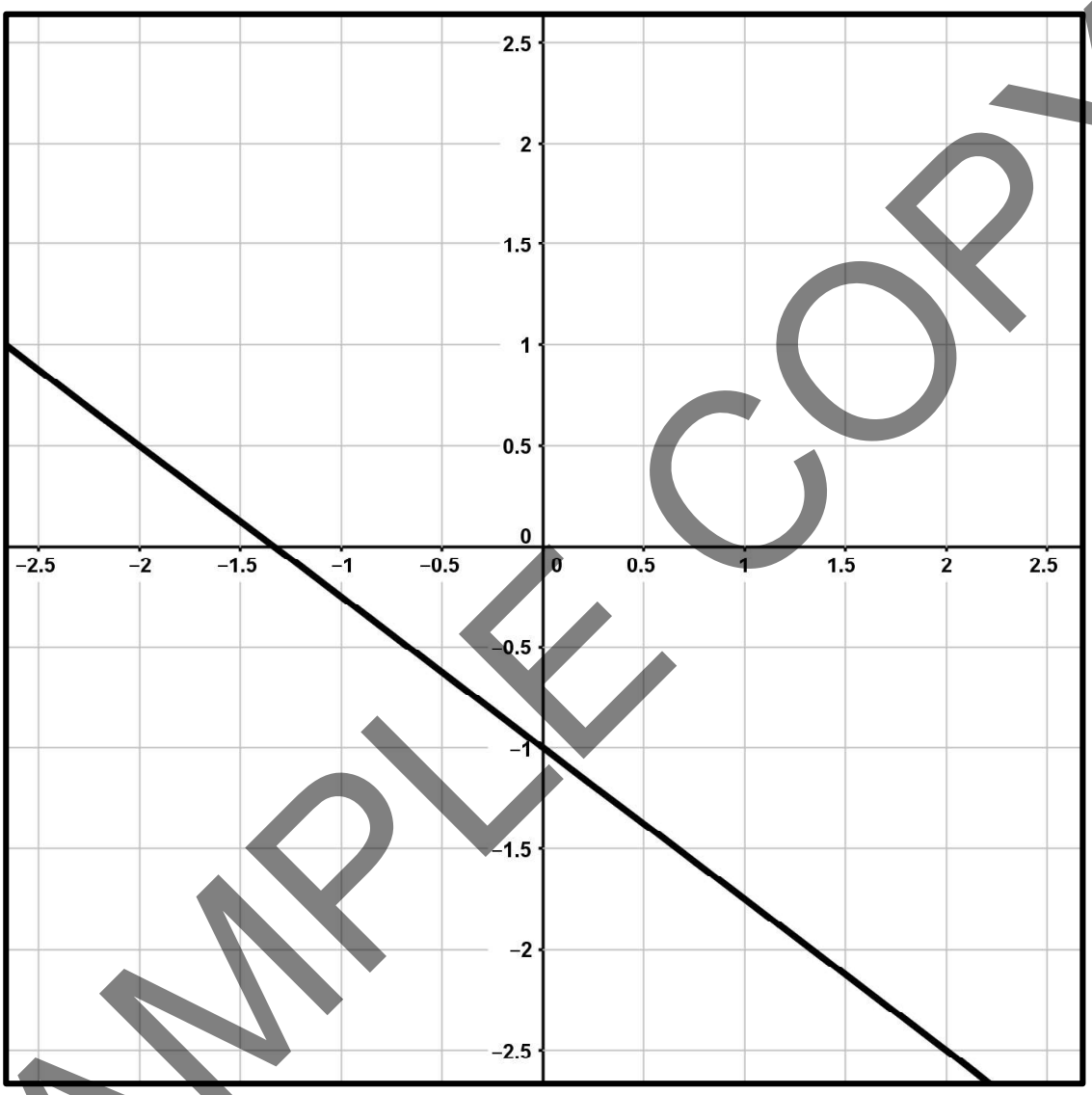
B 5

C –1.5

D $-\frac{5}{2}$

3 (A.3A)

What is the slope of the line represented by the graph below?



F $-\frac{4}{3}$

G $\frac{4}{3}$

H -1

J $-\frac{3}{4}$

Spiral 13

1 (A.5A)

What is the solution to $-7x - 3(-8x + 8) = 6(5x - 4)$?

A 0

B -1

C 4

D 1

2 (A.3A)

What is the slope of the line $4x - 3y = -7$?

F 4

G $-\frac{4}{3}$

H $\frac{4}{3}$

J $-\frac{4}{3}$

3 (A.3A)

What is the slope of the line that passes through (-4, -2) and (5, -5)?

A $-\frac{7}{9}$

B $-\frac{1}{3}$

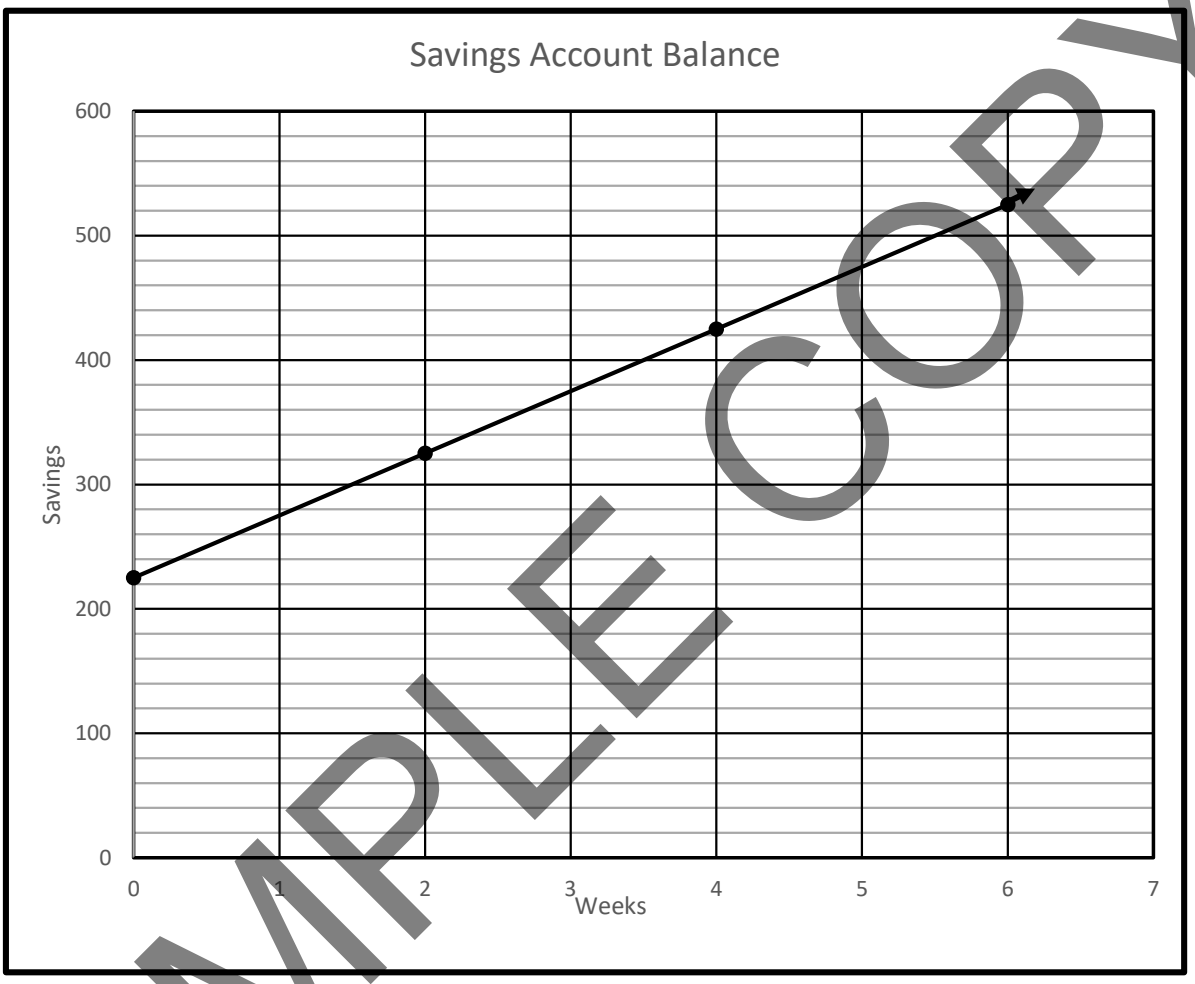
C -3

D $\frac{7}{9}$

Spiral 14

1 (A.3B)

The balance on a savings account is shown in the graph below.



What is the rate of change on the account balance in relation to the number of weeks deposits were made?

F 1 week per 50 deposits

G $50 per week

H $150 per week

J $25 per week

2 (A.3B)

The table below shows the relationship between the number of pencils purchased and the total cost.

Number of Pencils	Total Cost
4	$1.63
6	$2.07
8	$2.51
10	$2.95

What is the rate of change for the data shown in the table?

A 0.295

B 0.045

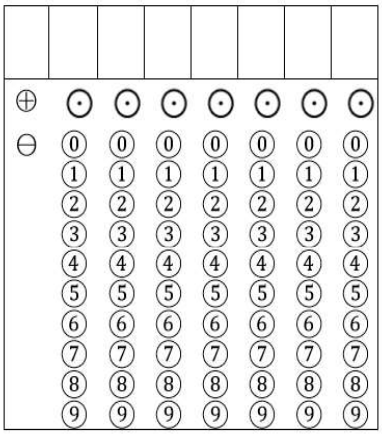
C 0.44

D 0.22

3 (A.3B)

A plumber charges $42.50 per hour plus a flat rate service fee of $250. The total cost, C, can be represented by the equation $C = 250 + 42.5h$ where h represents the number of hours worked.

What is the rate of change for this function?



SpiralEd Solutions

Spiral 15

1 (A.3A)

What is the slope of the line that passes through (-12, -8) and (6, -8)?

A $-\frac{8}{9}$

B 0

C undefined

D 1

2 (A.2D)

In a manufacturing plant a conveyor belt carries materials from one station to another. The distance traveled is directly proportional to the number of minutes the conveyor belt runs. If the conveyor belt travels 75 feet in 2.5 minutes, how long will it take to travel 420 feet?

F 30 minutes

G 168 minutes

H 28 minutes

J 14 minutes

3 (A.2D)

The amount of interest earned on a savings account is directly proportional to the amount of money in the account. If $5,000 earns $200 interest, how much interest is earned on $8,500?

A $25

B $125

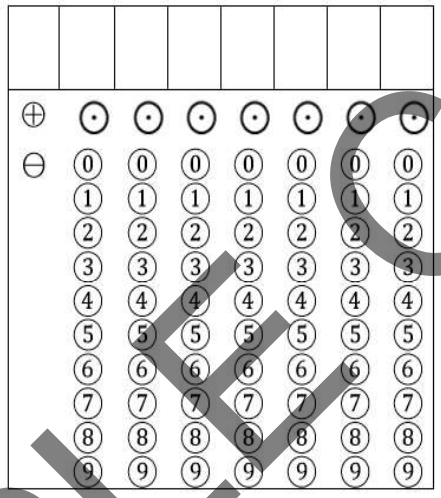
C $340

D $425

Spiral 16

1 (A.2D)

The cost of web site maintenance varies directly with the number of months the service is provided. If 22 months costs $935, what is the cost for one year? Record your answer and fill in the bubbles below.



2 (A.3B)

A lawn mowing service charges $22 per hour plus a service fee of $50. The total, C, of having the lawn mowed can be represented by the equation $C = 50 + 22h$ where h represents the number of hours worked.

What is the rate of change for this function?

A $\frac{1}{22}$ **B** 22

C 50 **D** -22

3 (A.5A)

What is the solution to $0.2(3x + 2) = -0.2(-1 - 2x)$?

F 0

G -2

H -1

J 5

SpiralEd Solutions

Spiral 17

1 (A.2B)

Write the slope-intercept form of the equation for a line that passes through (-2, -3) with a slope of $-\frac{1}{2}$.

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

B $y = -4x - \frac{1}{2}$

C $y = -\frac{1}{2}x - 4$

D $y = -x - 4$

2 (A.12E)

The formula to convert Celsius temperature to Fahrenheit scale is $F = \frac{9}{5}C + 32$. Use this formula to determine the formula to convert Fahrenheit to Celsius.

F $C = (F + 32)\frac{9}{5}$

G $C = (F - 32)\frac{5}{9}$

H $C = (F - 32)\frac{9}{5}$

J $C = \frac{9}{5}F - 32$

3 (A.2B)

The point-slope form of an equation for a line is $y + 4 = \frac{8}{3}(x + 3)$. This line has a slope of $\frac{8}{3}$ and passes through which of the following points?

A (-3, 4)

B (3, -4)

C (3, 4)

D (-3, -4)

Spiral 18

1 (A.2B)

A line passes through (0, 4) and (-3, 0). What is the slope-intercept form of the equation for the line?

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

G $y = \frac{4}{3}x + 4$

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

J $y = \frac{2}{3}x + 4$

2 (A.2C)

Which function represents the points included in the table?

x	-3	0	2	5
y	9	3	-1	-7

A $f(x) = -3x + 2$

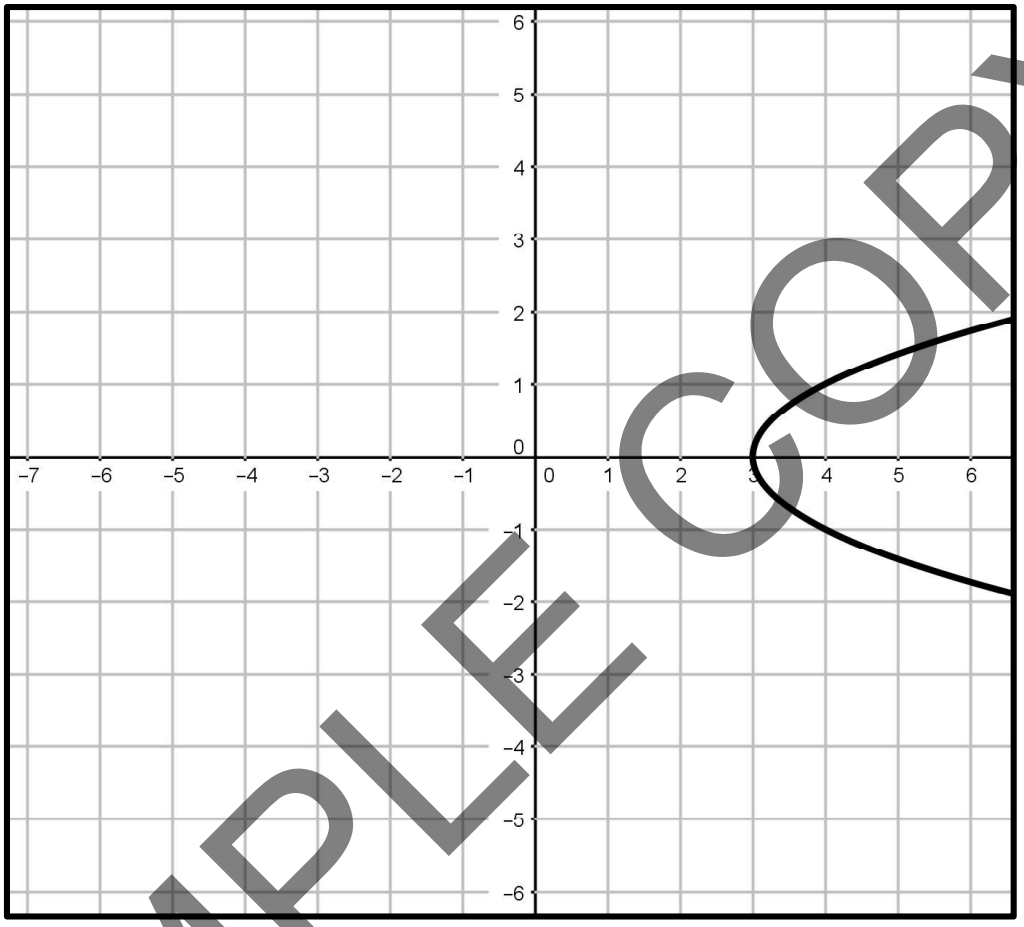
B $f(x) = -2x + 3$

C $f(x) = 2x - 3$

D $f(x) = 3x - 2$

3 (A.12A)

Which statement is true for the graph below?



F The graph shows a function, because it makes a line.

G The graph does not represent a function, because a vertical line can touch the graph at more than one point.

H The graph represents a function, because a relationship can be constructed between the input and output values.

J The graph does not represent a function, because none of the points are in Quadrant II or III.

SpiralEd Solutions

Spiral 19

1 (A.2B)

A line passes through (-3, -4) and (0, 4). What is the slope-intercept form of the equation for the line?

A $y = \frac{8}{3}x + 4$

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

C $y = 4x + \frac{4}{3}$

D $y = \frac{4}{3}x + 4$

2 (A.2B)

Write the slope-intercept form of the equation of a line with a slope of $-\frac{1}{2}$, and passing through (-5, 1).

F $y = -\frac{3}{2}x - \frac{1}{2}$

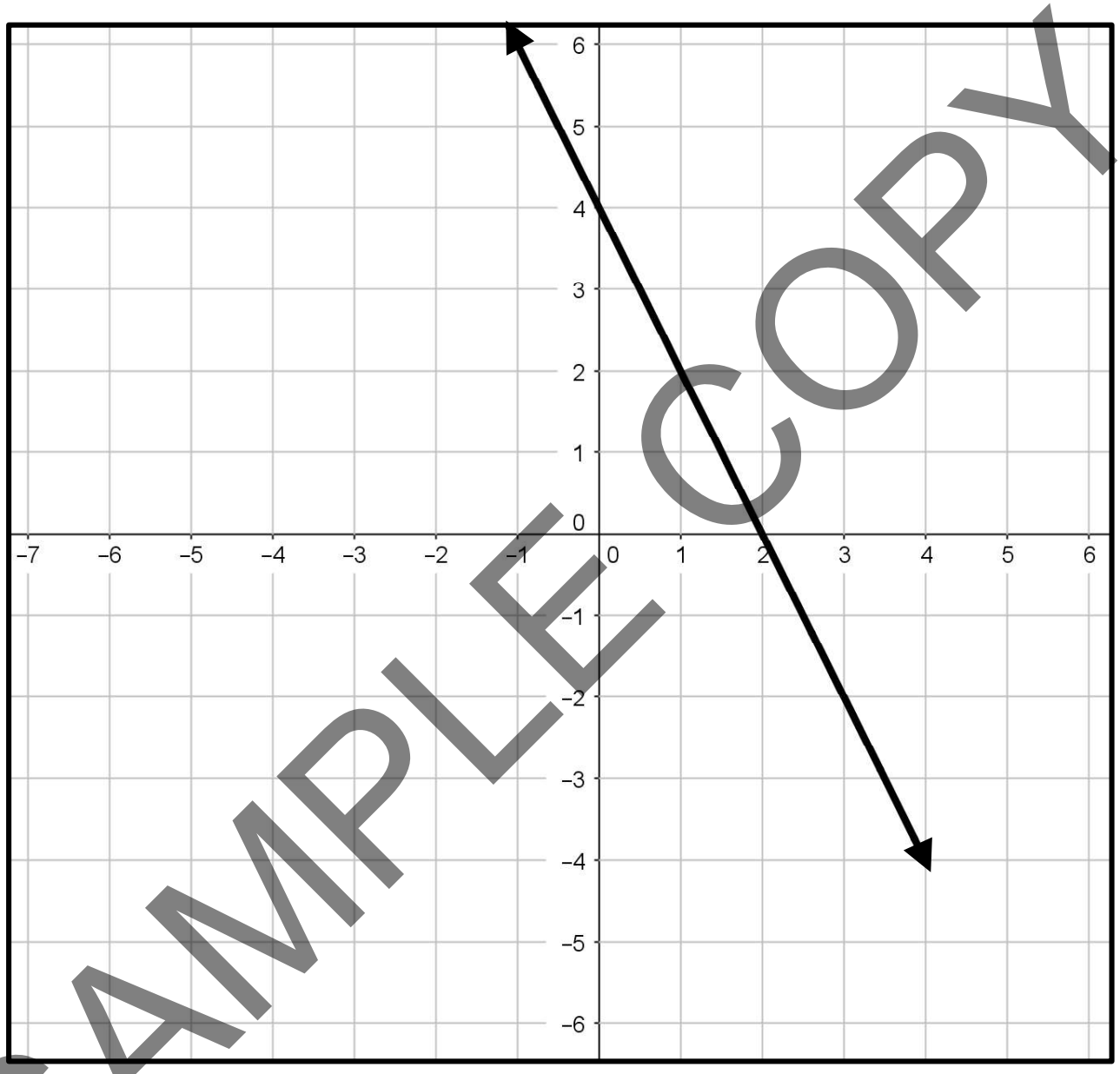
G $y = -\frac{1}{2}x - \frac{3}{2}$

H $y = -2x - \frac{1}{2}$

J $y = 2x - \frac{1}{2}$

3 (A.2C)

Which function is represented by the graph?



A $f(x) = -4x + 2$

B $f(x) = -2x + 2$

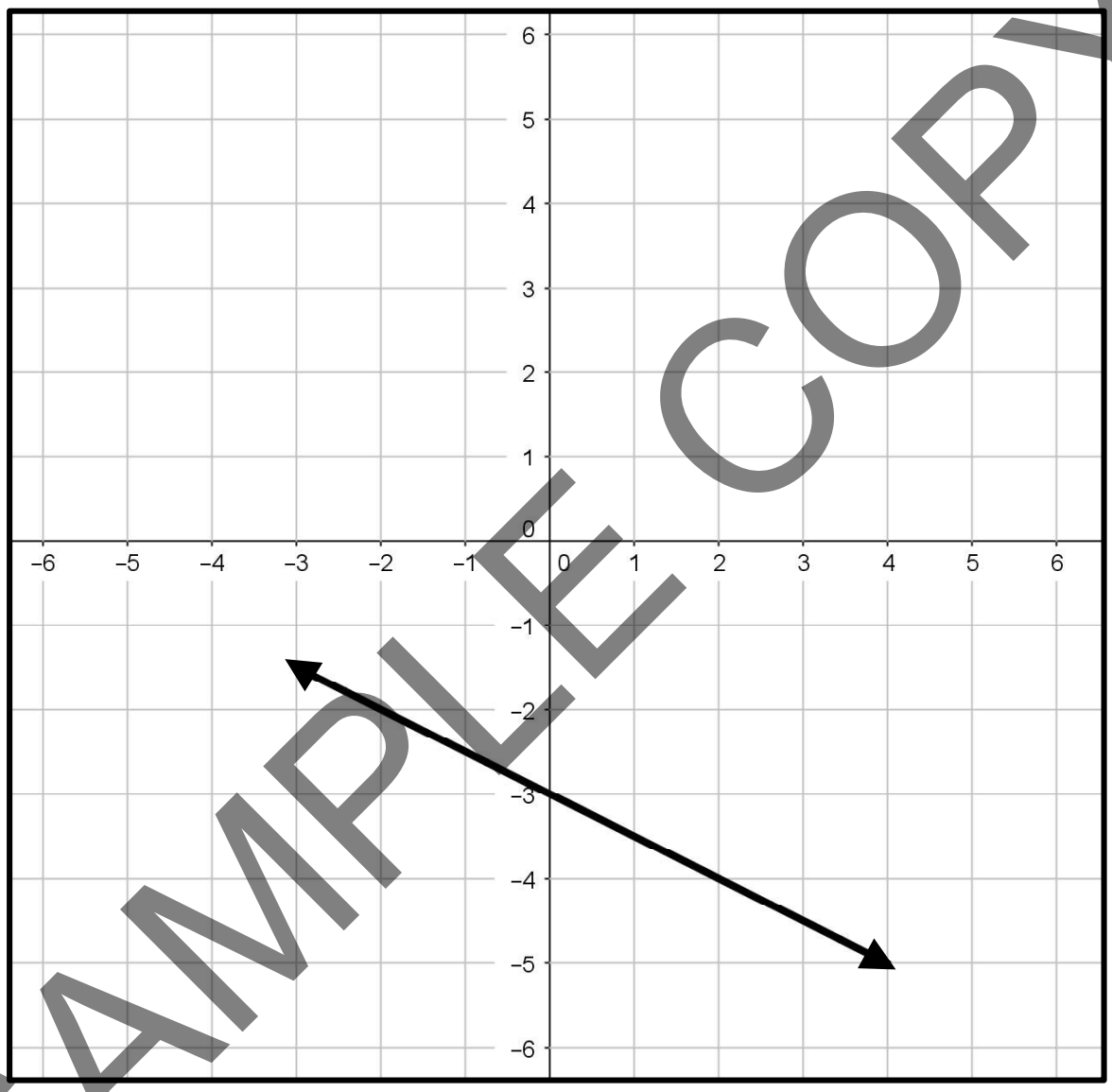
C $f(x) = -2x + 4$

D $f(x) = 2x - 4$

Spiral 20

1 (A.2C)

Which function is represented by the graph?



F $f(x) = -\frac{1}{2}x - 3$

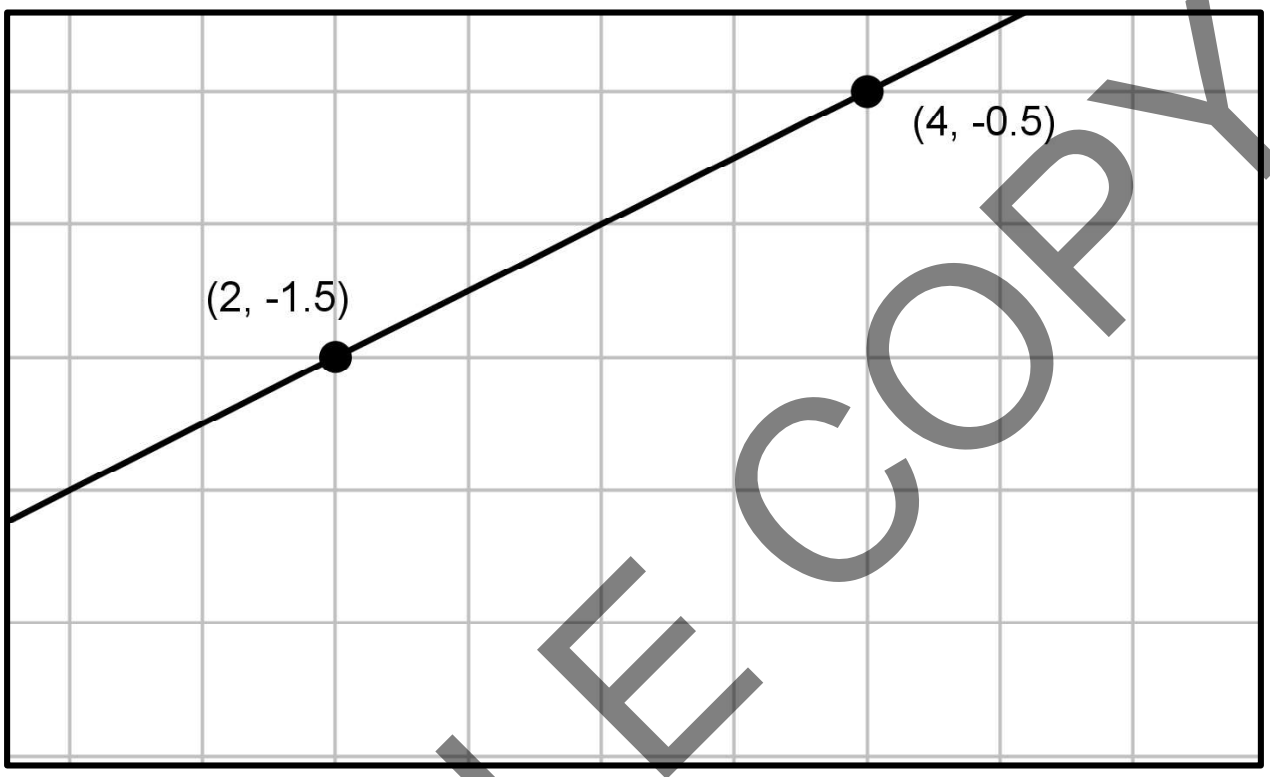
G $f(x) = \frac{1}{2}x - 3$

H $f(x) = \frac{1}{2}x + 3$

J $f(x) = -\frac{1}{2}x + 3$

2 (A.3C)

What is the slope of the line shown below?



A $\frac{1}{2}$

B 5

C –1.5

D $-\frac{5}{2}$

3 (A.2C)

An athletic trainer determines that the number of calories needed after a workout depends on a base amount of 200 calories plus 53 calories for each minute of weightlifting. Which equation represents the number of post workout calories required as a function of the number of minutes of weightlifting (m) completed?

F $f(m) = 200m - 53$

G $f(m) = 53m + 200$

H $f(m) = 53m - 200$

J $f(m) = \frac{53m}{200}$

Spiral 21

1 (A.2C)

Which function represents the points included in the table?

x	-5	-3	0	3
y	-13	-9	-3	3

A $f(x) = -3x + 2$

B $f(x) = -2x + 3$

C $f(x) = 2x - 3$

D $f(x) = 3x - 2$

2 (A.2C)

Which function represents the points included in the table?

x	**f(x)**
-3	-11
0	-2
1	1
5	13

F $f(x) = -3x + 2$

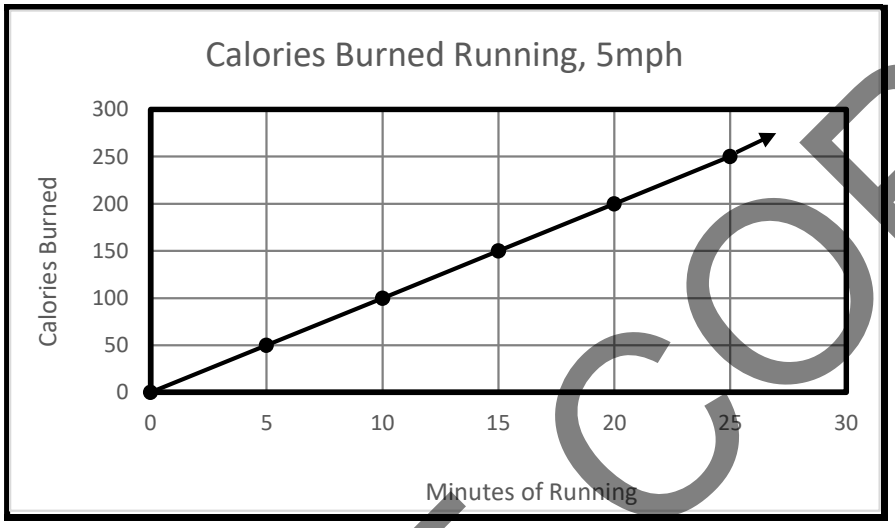
G $f(x) = -2x + 3$

H $f(x) = 2x - 3$

J $f(x) = 3x - 2$

3 (A.3B)

The number of calories burned by running is shown in the graph below.



What is the rate of change of calories per minute based on the information in the graph?

A 10 calories per minute

B $\frac{1}{10}$ of a calorie per minute

C 50 calories per minute

D 0.01 calories per minute

Spiral 22

1 (A.2B)

Write the slope-intercept for of the equation of a line with a slope of $\frac{5}{2}$, and passing through (2, 5).

F $y = -\frac{5}{2}x$

G $y = x$

H $y = 1$

J $y = \frac{5}{2}x$

2 (A.2E)

Write the equation of a line that passes through (2, 6) and is parallel to $y = -4x + 2$.

A $y = -4x + 14$

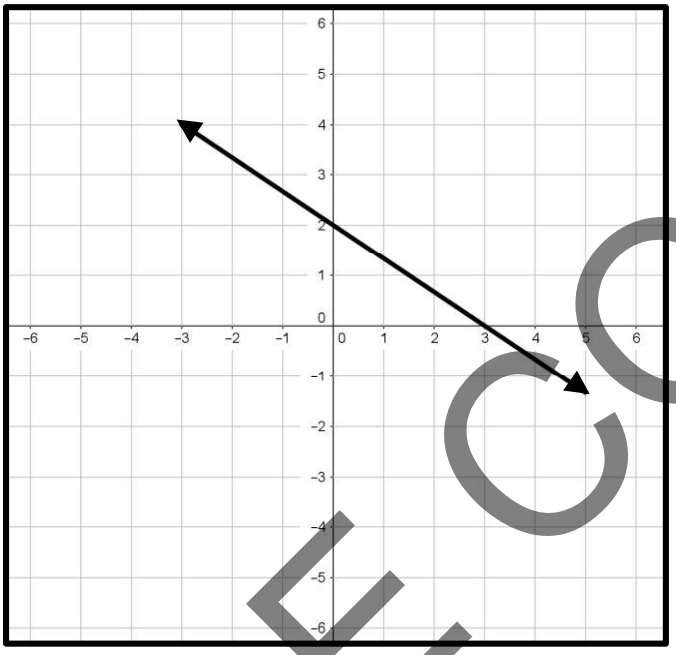
B $y = 4x - 2$

C $y = 2x + 4$

D $y = \frac{1}{4}x - \frac{13}{2}$

3 (A.2E)

Write the equation of a line that passes through (3, -2) and is parallel to the line in the graph below.



F $y = \frac{3}{2}x + 3$

G $y = -\frac{2}{3}x$

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

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

Spiral 23

1 (A.2E)

Write the equation of a line that passes through (2, 2) and is parallel to $2x + y = 6$.

A $y = 2x - 2$

B $y = -2x + 6$

C $y = -\frac{1}{2}x - 3$

D $y = -2x + 3$

2 (A.12B)

If the domain of the function, $f(x) = -(x - 7)$, is $x \geq -2$, which term is not included in the range?

F 10 **G** 9

H 2 **J** -2

3 (A.2F)

Write the equation of a line that passes through (2, 6) and is perpendicular to $y = -4x + 2$.

A $y = \frac{1}{4}x + \frac{11}{2}$

B $y = 4x - 2$

C $y = 2x + 4$

D $y = \frac{1}{4}x - \frac{13}{2}$

Spiral 24

1 (A.2F)

Write the equation of a line that passes through (2, 2) and is perpendicular to $2x + y = 6$.

F $y = 2x - 2$

G $y = \frac{1}{2}x + 1$

H $y = \frac{1}{2}x - 3$

J $y = -2x + 3$

2 (A.2G)

Which of the following lines could be parallel to $y = -5$?

A A line passing through (-4, 2) with a slope of 1.

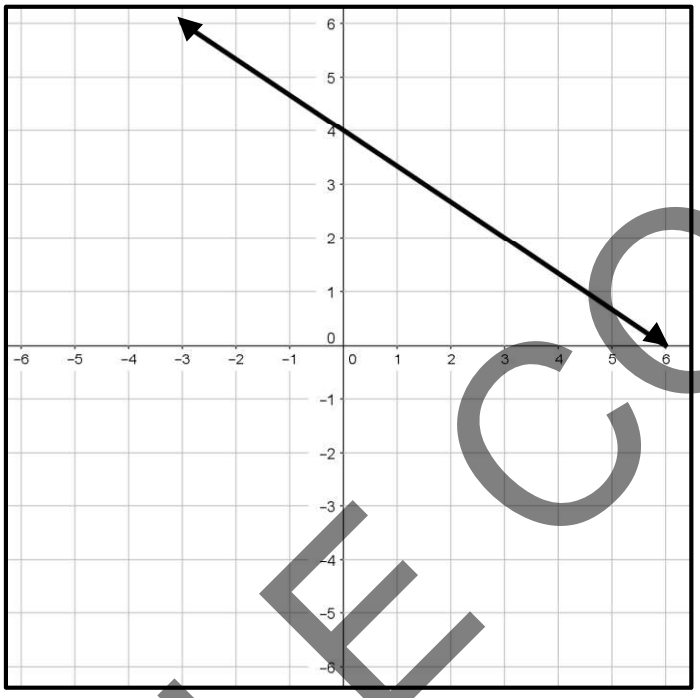
B A line passing through (3, 2) with a slope of 0.

C A line passing through (-5, -5) with an undefined slope.

D A line passing through (3, 7) with a slope of -1.

3 (A.2F)

Write the equation of a line that passes through (-2, 6) and is perpendicular to the line in the graph below.



F $y = \frac{3}{2}x + 3$

G $y = \frac{3}{2}x + 9$

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

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

Spiral 25

1 (A.2G)

Which of the following lines could be perpendicular to $y = -5$?

A A line passing through (-4, 2) with a slope of 1.

B A line passing through (3, 2) with a slope of 0.

C A line passing through (-5, -5) with an undefined slope.

D A line passing through (3, 7) with a slope of -1.

2 (A.2A)

A 1700 gallon swimming pool is being drained at a rate of 128 gallons per hour. The function, $g = 1700 - 128h$, shows the number of remaining gallons at h hours. What is the range for this function?

F $\{0 \leq y \leq 1700\}$

G $\{y \leq 1700\}$

H $\{y \geq 0\}$

J $\{0 \geq y \geq 1700\}$

3 (A.2A)

A cheer squad has at least 8 members and no more than 12 members. Uniforms cost \$300 each plus \$55 in total shipping cost. The total cost, C, of buying uniforms for the squad is represented by the function, $C = 300m + 55$, where m represents the number of members in the squad.

The table shows the total cost for uniforms dependent on the size of the squad.

members	8	9	10	11	12
cost	\$2455	\$2755	\$3055	\$3355	\$3655

What is the range for this function?

A $\{8 \geq y \geq 12\}$

B $\{8 \leq y \leq 12\}$

C $\{2455, 2755, 3055, 3355, 3655\}$

D $\{2455 \leq y \leq 3655\}$

SpiralEd Solutions

Spiral 26

1 (A.2G)

Which of the following lines could be parallel to the y-axis?

F A line passing through (-4, 2) with a slope of 1.

G A line passing through (3, 2) with a slope of 0.

H A line passing through (-5, -5) with an undefined slope.

J A line passing through (3, 7) with a slope of -1.

2 (A.2A)

A 2100 gallon swimming pool is being drained at a rate of 150 gallons per hour. The function, $g = 2100 - 150h$, shows the number of remaining gallons at h hours.

The table shows the amount of water remaining at two-hour intervals.

hours	0	2	4	6	8	10	12	14
gallons	1700	1800	1500	1200	900	600	300	0

What is the domain for this function?

A $\{0 \leq x \leq 2100\}$

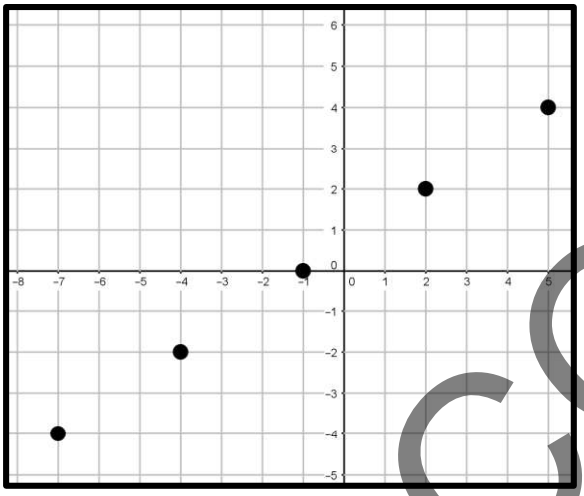
B $\{x \leq 2100\}$

C $\{x \geq 0\}$

D $\{0 \leq x \leq 14\}$

3 (A.2A)

What is the domain of the discrete function shown in the graph?



F {all real numbers}

G $\{-4, -2, 0, 2, 4\}$

H $\{-7 \leq x \leq 5\}$

J $\{-7, -4, -1, 2, 5\}$

Spiral 27

1 (A.12D)

Given the pattern, 5, 8, 11, 14, 17…, which expression could be used to determine the *nth* term?

A $3n-2$

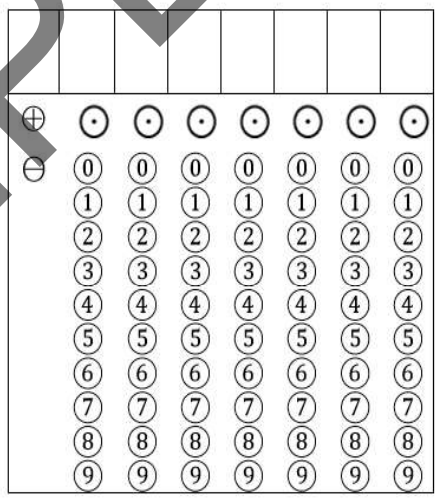
B $2n-2$

C $2n+2$

D $3n+2$

2 (A.3A)

What is the slope of the line $y-3=2(x-4)$? Record your answer and fill in the bubbles below.



3 (A.3E)

A linear function is graphed on a coordinate plane $f(x) = x$. The graph of a new line is formed by changing the slope of the original line to $\frac{1}{3}$ and the y-intercept to 5. Which statement about the relationship between these two graphs is true?

A The graph of the new line is steeper than the graph of the original line, and the y-intercept is translated down.

B The graph of the new line is less steep than the graph of the original line, and the y-intercept is translated up.

C The graph of the new line is steeper than the graph of the original line, and the y-intercept is translated up.

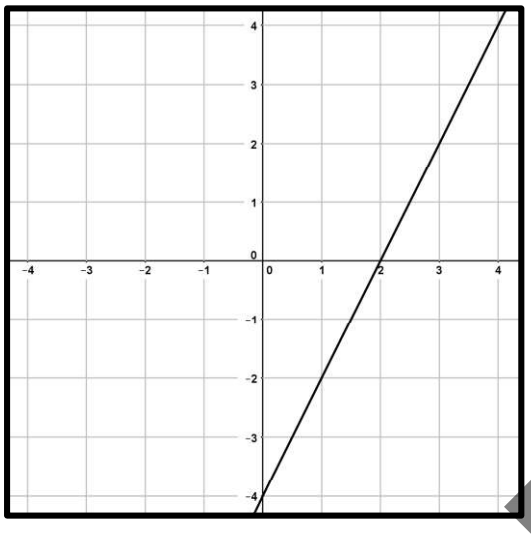
D The graph of the new line is less steep than the graph of the original line, and the y-intercept is translated down.

Spiral 28

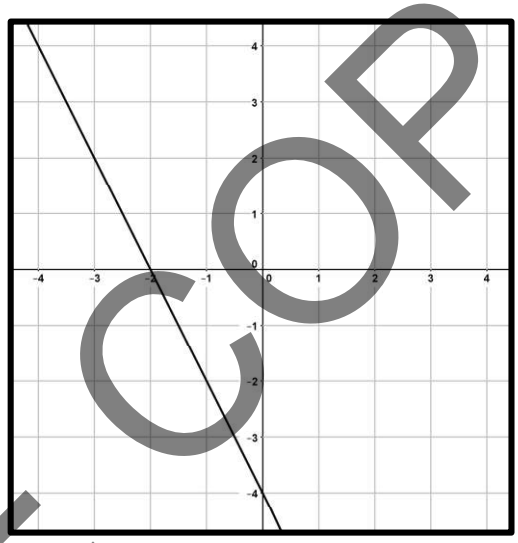
1 (A.3C)

Which graph represents $2x + y = -4$?

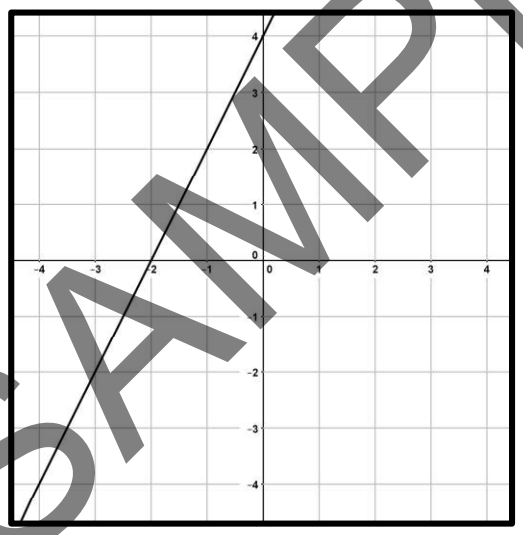
F



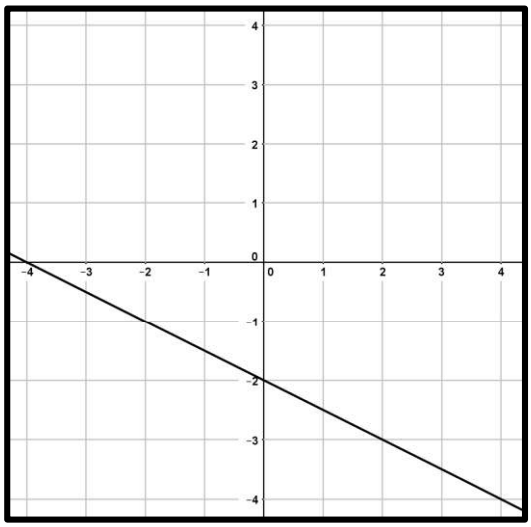
G



H



J



2 (A.12D)

The sum of the interior angles of a triangle is 180°, a quadrilateral is 360°, and a pentagon is 540°. Which formula could be used to determine the sum of the interior angles in degrees (d) of a polygon with n sides?

A $d = (n+2)180$

B $d = (n-2)180$

C $d = \frac{(n-2)}{180}$

D $d = \frac{(n-180)}{n}$

3 (A.3B)

The table below shows the relationship between the number of gallons remaining in a ten-gallon gas tank and the number of miles travelled.

Miles Travelled	Gas Remaining
5	9.75
10	9.5
20	9
42	7.9

What is the rate of change for the data shown in the table?

F -0.5

G -0.05

H 0.5

J -0.25

Spiral 29

1 (A.3E)

A linear function is graphed on a coordinate plane $f(x) = x$. The graph of a new line is formed by changing the slope of the original line to 4 and the y-intercept to 3. Which statement about the relationship between these two graphs is true?

A The graph of the new line is steeper than the graph of the original line, and the y-intercept is translated down.

B The graph of the new line is less steep than the graph of the original line, and the y-intercept is translated up.

C The graph of the new line is steeper than the graph of the original line, and the y-intercept is translated up.

D The graph of the new line is less steep than the graph of the original line, and the y-intercept is translated down.

2 (A.2A)

A cheer squad has at least 8 members and no more than 12 members. Uniforms cost $300 each plus $55 in total shipping cost. The total cost, C, of buying uniforms for the squad is represented by the function, $C = 300m + 55$, where m represents the number of members in the squad. What is the domain for this function?

F $8 \geq x \geq 12\}$

G $\{8,9,10,11,12\}$

H $\{2455 \leq x \leq 3655\}$

J $\{x \leq 3655\}$

3 (A.3E)

A linear function is graphed on a coordinate plane $f(x) = x$. The graph of a new line is formed by changing the slope of the original line to $\frac{5}{3}$ and the y-intercept to 2. Which statement about the relationship between these two graphs is true?

A The graph of the new line is steeper than the graph of the original line, and the y-intercept is translated down.

B The graph of the new line is less steep than the graph of the original line, and the y-intercept is translated up.

C The graph of the new line is steeper than the graph of the original line, and the y-intercept is translated up.

D The graph of the new line is less steep than the graph of the original line, and the y-intercept is translated down.

Spiral 30

1 (A.2C)

Which function represents the points included in the table?

x	f(x)
-3	11
0	2
1	-1
5	-13

F $f(x) = -3x + 2$

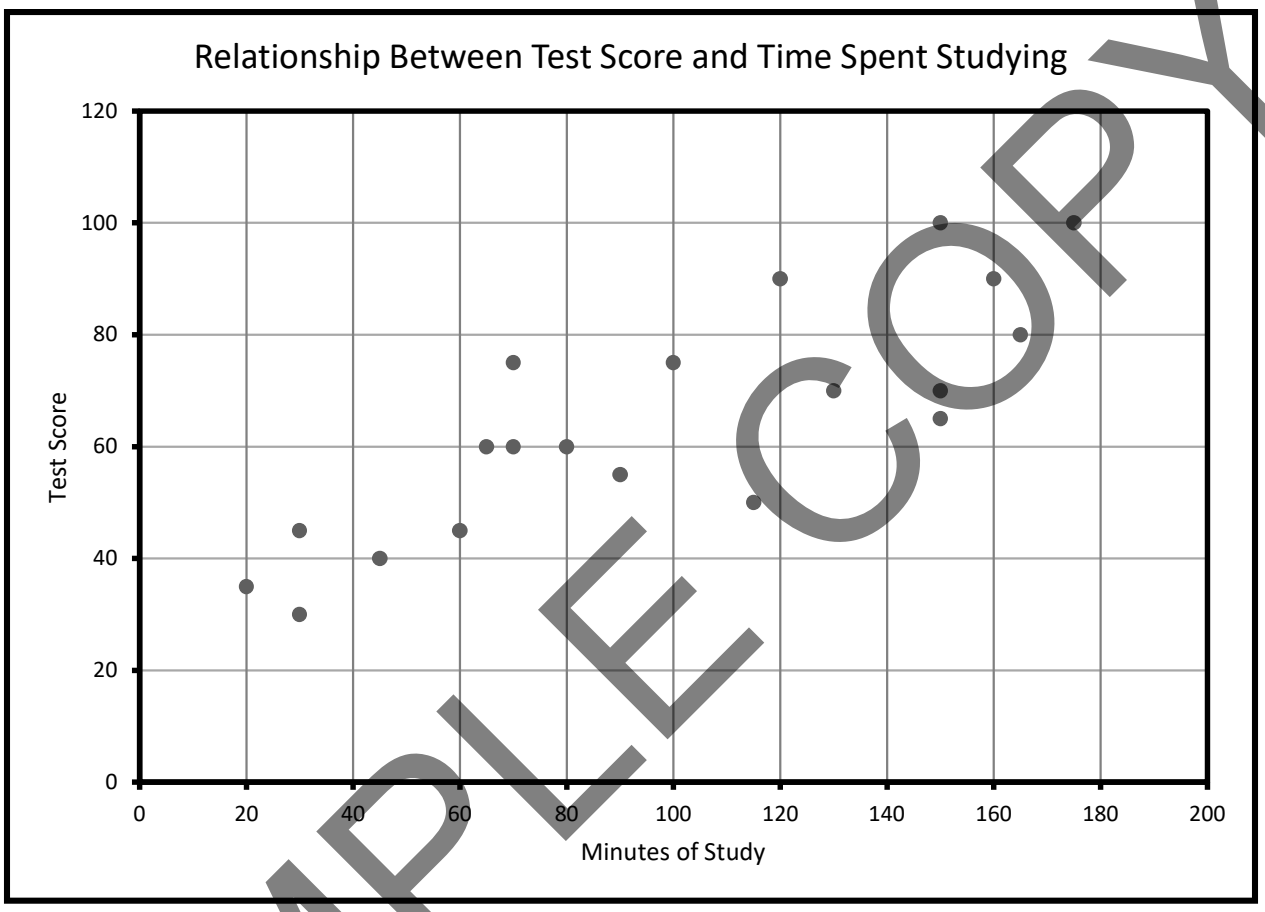
G $f(x) = -2x + 3$

H $f(x) = 2x - 3$

J $f(x) = 3x - 2$

2 (A.4C)

The graph below shows the relationship between the number of minutes spent studying for an exam and the student's score on the exam.



Which function best models the data?

A $y = 3x + 32$

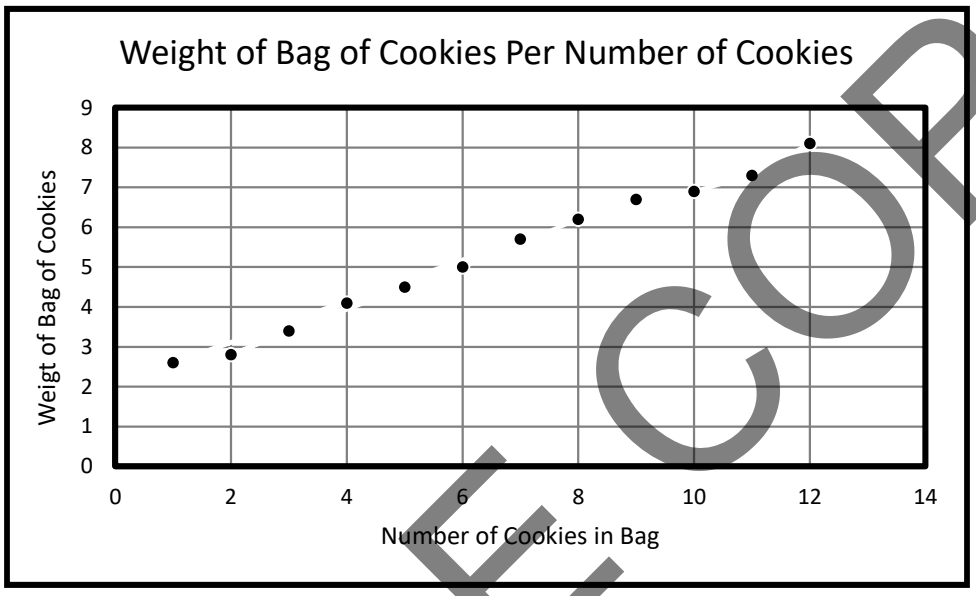
B $y = 0.25x + 40$

C $y = 0.5x + 30$

D $y = 1.3x + 10$

3 (A.4C)

The graph shows the relationship between the total weight of a bag of cookies and the number of cookies in the bag.



Which function models the data?

F $y = 0.5x + 2$

G $y = 2x + 2$

H $y = 1.2x + 2$

J $y = 0.8x + 2$

SpiralEd Solutions

Spiral 31

1 (A.3E)

A linear function is graphed on a coordinate plane $f(x) = x$. The graph of a new line is formed by changing the slope of the original line to $\frac{15}{16}$ and the y-intercept to -2. Which statement about the relationship between these two graphs is true?

A The graph of the new line is steeper than the graph of the original line, and the y-intercept is translated down.

B The graph of the new line is less steep than the graph of the original line, and the y-intercept is translated up.

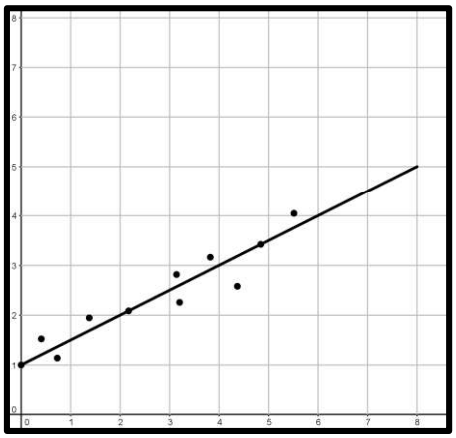
C The graph of the new line is steeper than the graph of the original line, and the y-intercept is translated up.

D The graph of the new line is less steep than the graph of the original line, and the y-intercept is translated down.

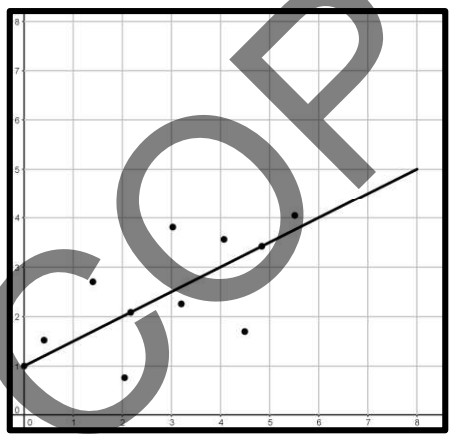
2 (A.4A)

Each graph shows a scatterplot with a line of best fit. Which graph shows the data set with a correlation coefficient closest to one?

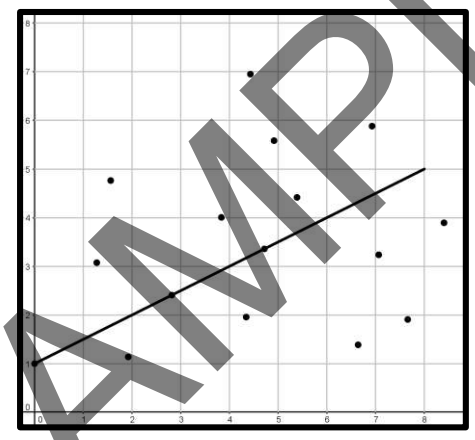
F



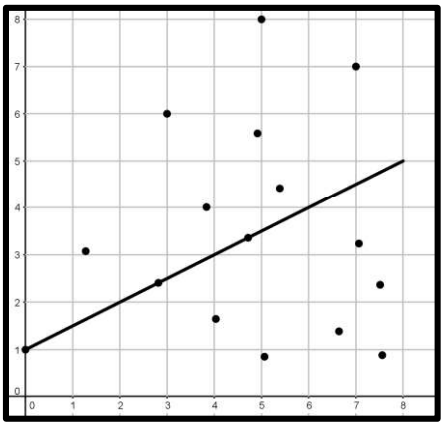
G



H

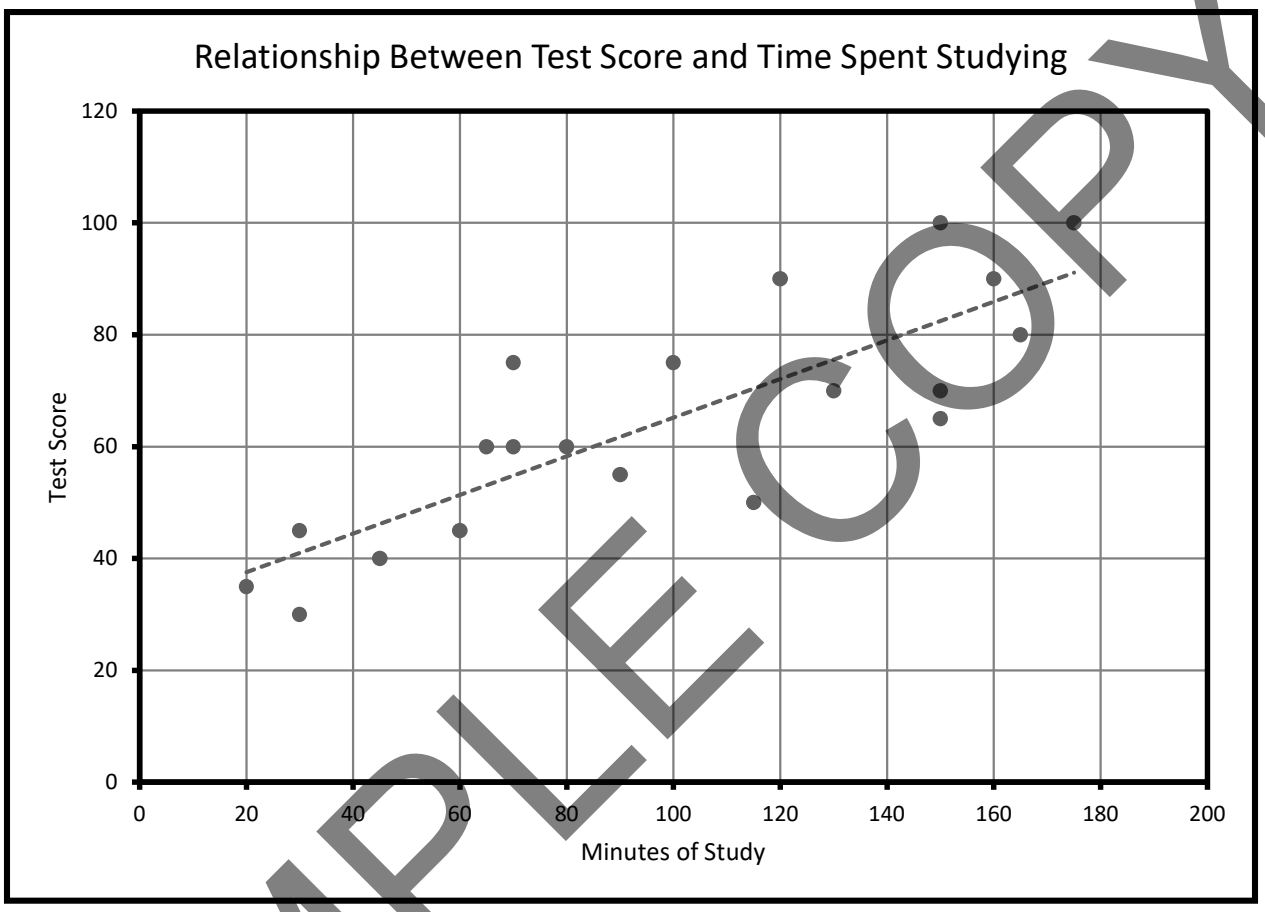


J



3 (A.4C)

The graph below shows the relationship between the number of minutes spent studying for an exam and the student's score on the exam.



Based on this data, a student who needed a minimum score of 80 should plan to study at least how many minutes?

A 180

B 60

C 70

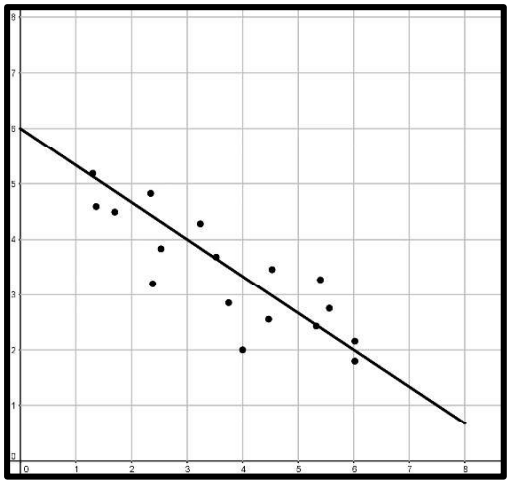
D 140

Spiral 32

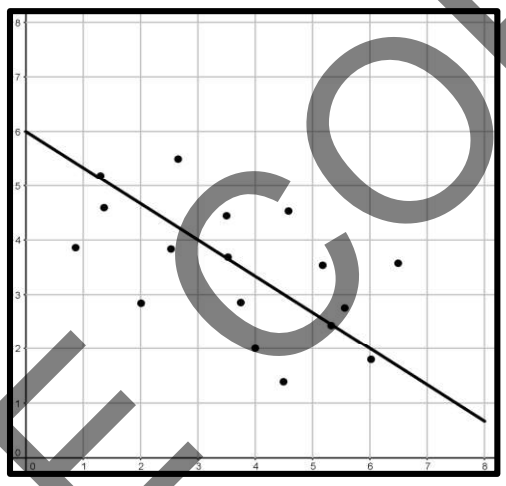
1 (A.4A)

Each graph shows a scatterplot with a line of best fit. Which graph shows the data set with a correlation coefficient closest to one?

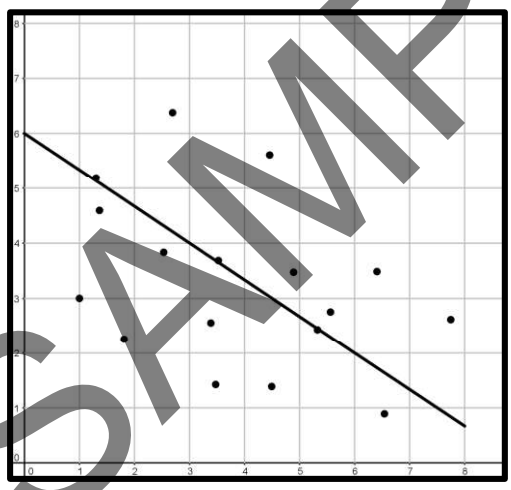
F



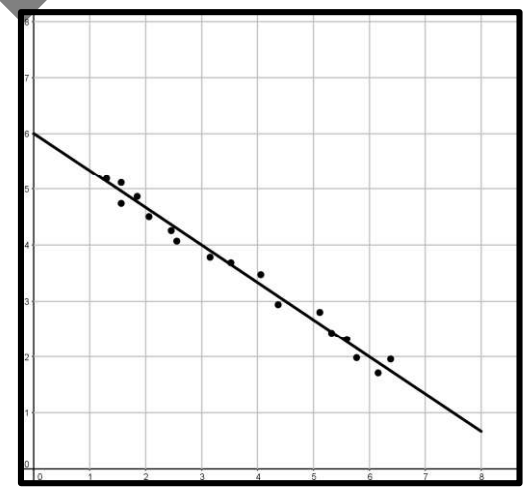
G



H



J



2 (A.4B)

A student notices that every time the *Fasten Seatbelt* sign on the plane comes on, the flight becomes bumpy. What is the best conclusion based on this information?

A The lighted seatbelt sign causes the flight to become bumpy.

B The bumpy flight causes the seatbelt sign to light.

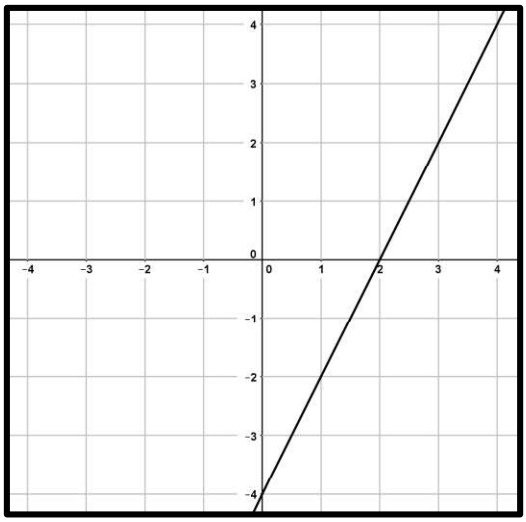
C There is no association between the two events, as they just happen to occur around the same time.

D There is an association between the two events, but it does not prove causation.

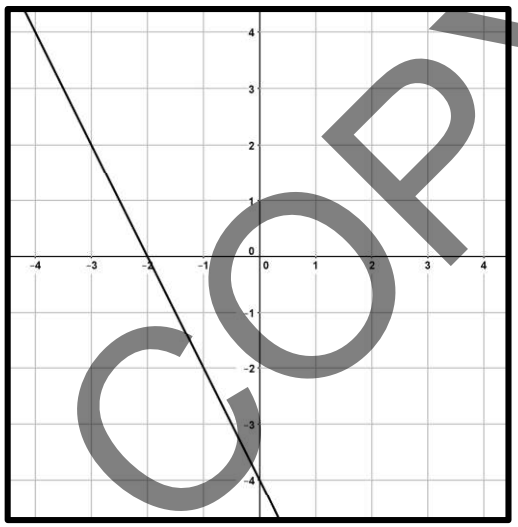
3 (A.3C)

Which graph represents $2x - y = 4$?

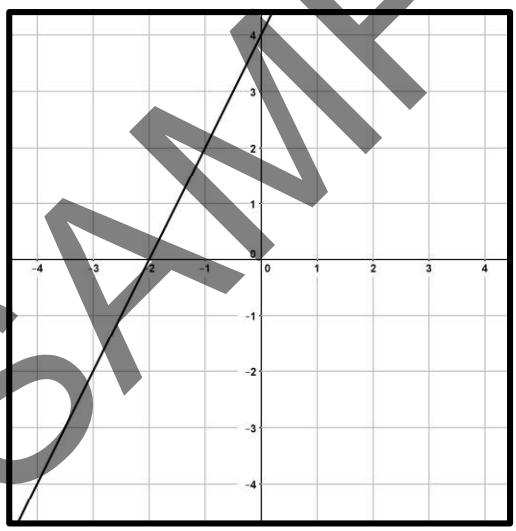
F



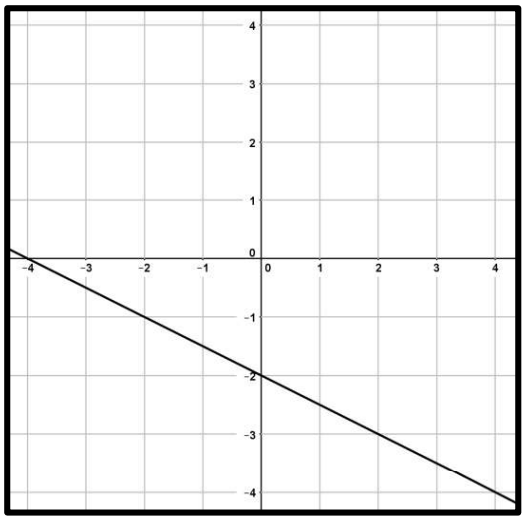
G



H



J



Spiral 33

1 (A.4B)

Rain fell all morning on Tuesday and into the afternoon. At 3:00 PM the rain stopped and the sun came out, just as the mail carrier rang the doorbell. What is the best conclusion based on this information?

A No conclusion can be drawn on a single event.

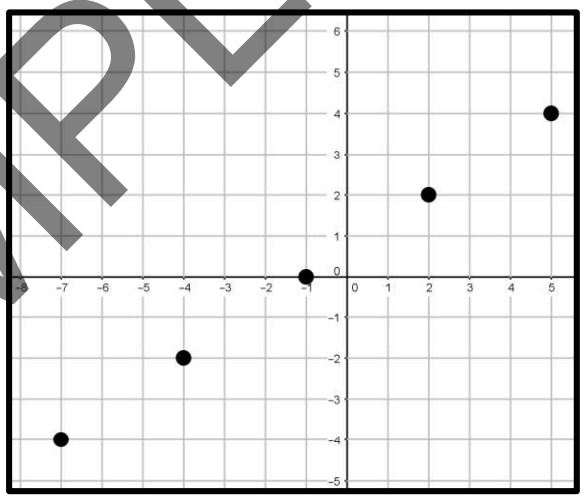
B There is an association between the rain stopping and the mail carrier ringing the doorbell.

C The mail carrier ringing the doorbell caused the rain to stop.

D This association only exits in Texas.

2 (A2A)

What is the range of the discrete function shown in the graph?



F {all real numbers}

G $\{-4,-2,0,2,4\}$

H $\{-4 \le y \le 4\}$

J $\{-7,-4,-1,2,5\}$

3 (A.4B)

A scientist observed that when Fungus A was added to Bacteria A, the bacteria was dead within 24 hours. She repeated the experiment numerous times, maintaining a control group of bacteria to which she did not add the fungus. The control group lived, and the treated group all died. What is the best conclusion based on this information?

A There is no correlation between the addition of the fungus and the death of the bacteria.

B There is an association between the addition of the fungus and the death of the bacteria, but no causation is established.

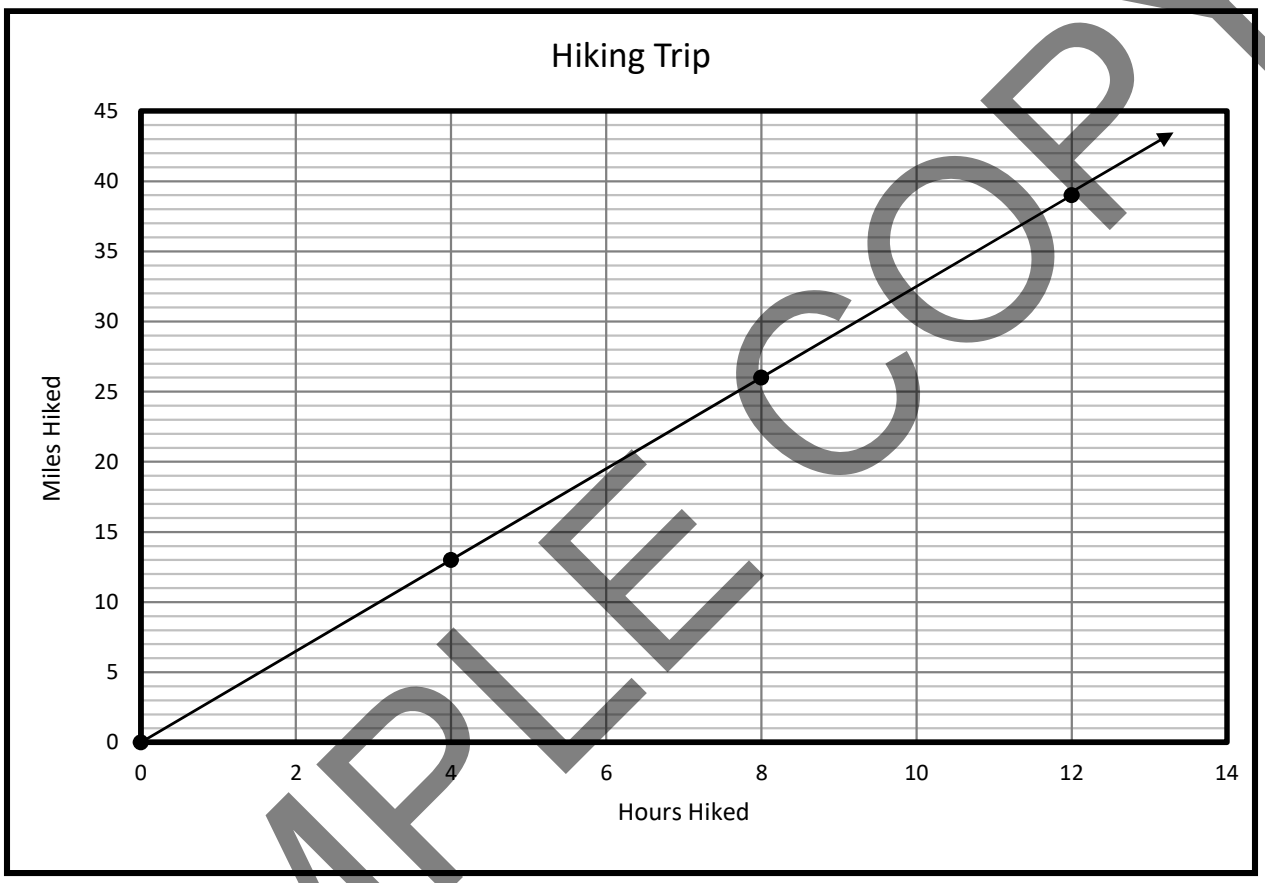
C There is evidence indicating that the fungus may cause the bacteria to die.

D There is an association between the addition of the fungus and the death of the bacteria, but no evidence of correlation or causation exist.

Spiral 34

1 (A.3B)

The graph below shows the distance hiked in miles in relation to the number of hours spent hiking.



What is the rate of change for the data shown in the table?

F $\frac{6}{5}$

G $\frac{2}{7}$

H $\frac{13}{4}$

J $\frac{6}{19}$

2 (A.5B)

Which inequality describes all the solutions to $6 - 8x \geq x + 177$?

A $x \leq 17$

B $x \geq -17$

C $x \leq -19$

D $x \leq 21$

3 (A.5B)

Which inequality describes all the solutions to $-2(x - 7) > -x - 4$?

F $x < 18$

G $x < 22$

H $x < -8$

J $x > 12$

Spiral 35

1 (A.5B)

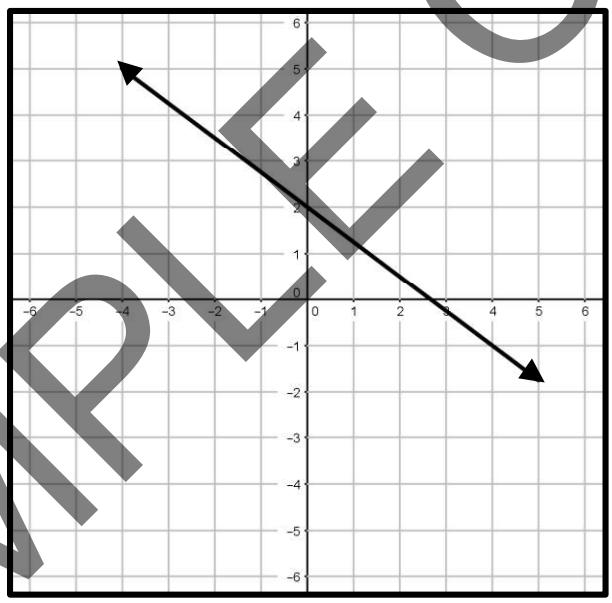
Which inequality describes all the solutions to $54 - x > 10 - 5x$?

A $x > 10$ **B** $x > -11$

C $x < -11$ **D** $x > -15$

2 (A.3D)

The graph below shows the function, $y = \frac{-3}{4}x + 2$.



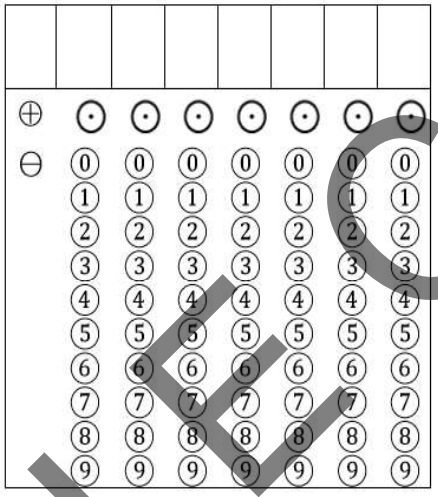
Which point would be included in the function $y \leq \frac{-3}{4}x + 2$?

F (1, 4) **G** (-1, 4)

H (4, 1) **J** (-4, -1)

3 (A.2D)

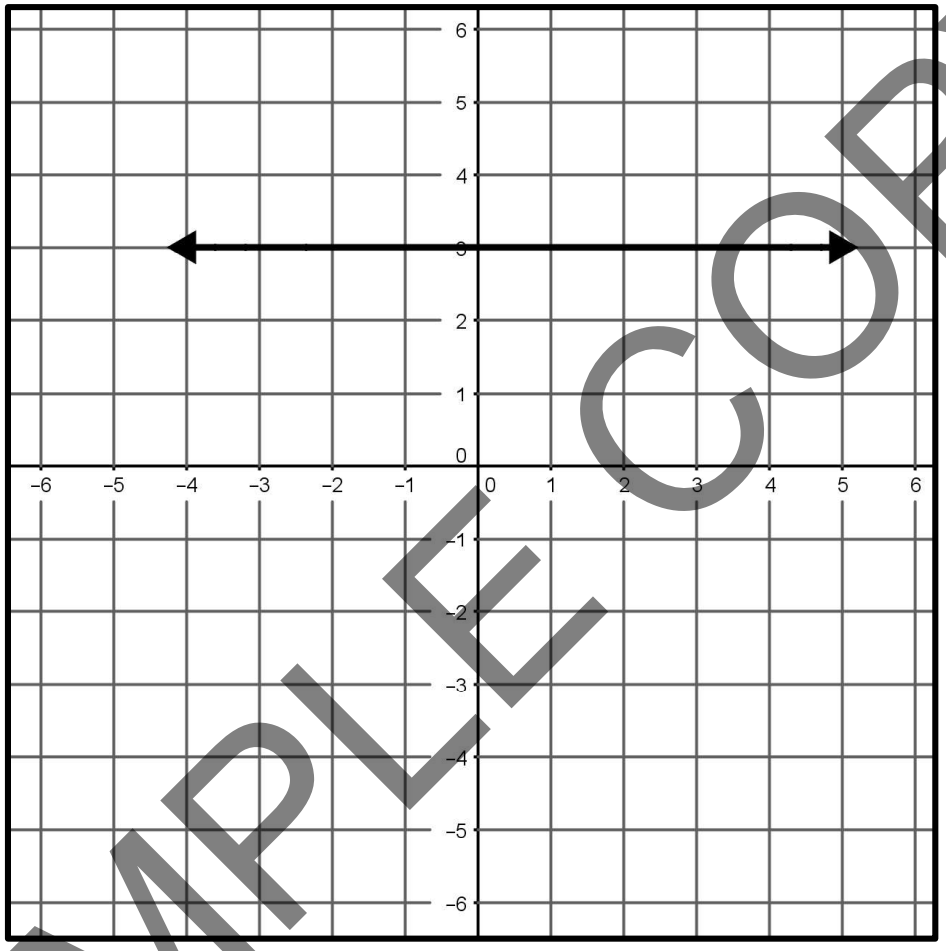
The amount of interest owed each month on a fixed rate mortgage varies directly as the current balance. If the balance for one month is $65,000 and the interest owed is $1430, what is the amount of interest owed five years later when the balance is $48,000? Record your answer and fill in the bubbles below.



Spiral 36

1 (A.3D)

The graph below shows the function, $y = 3$.



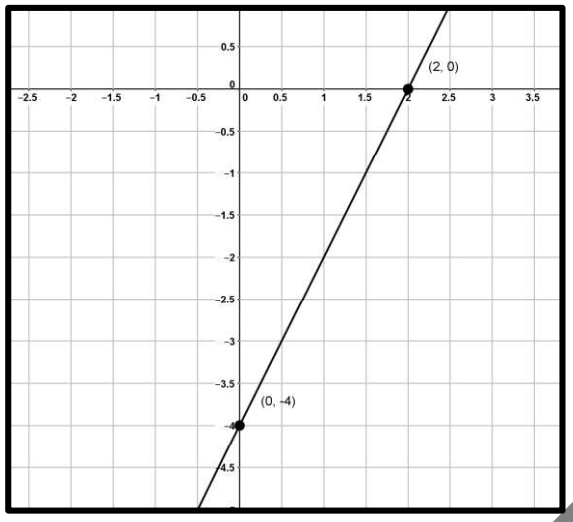
Which point would be included in the function $y \geq 3$?

F (2, 3) **G** (-2, -3) **H** (3, 2) **J** (3, -2)

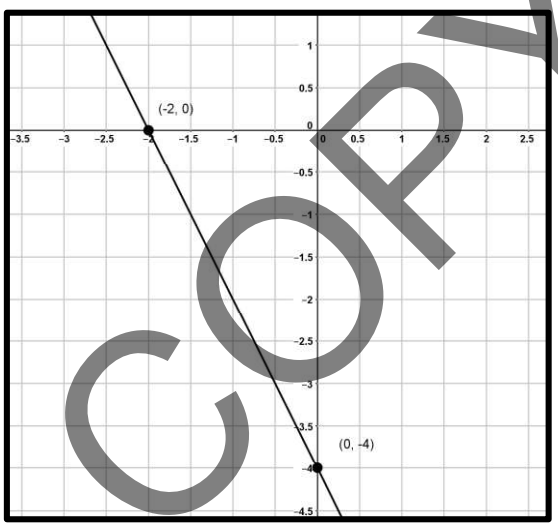
2 (A.3C)

Which graph represents $-2x + y = 4$?

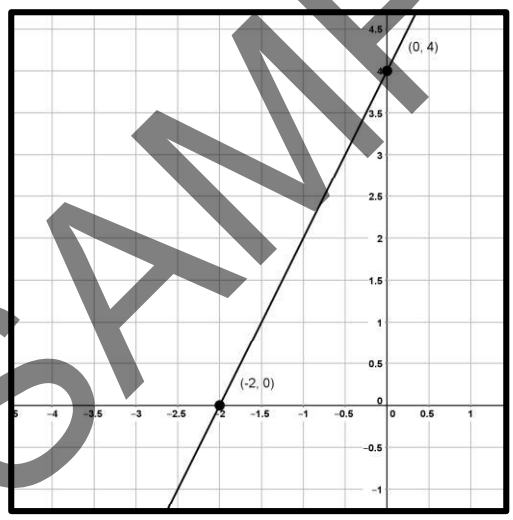
A



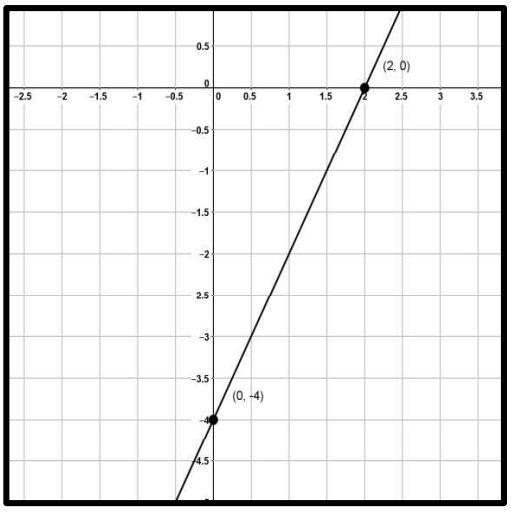
B



C

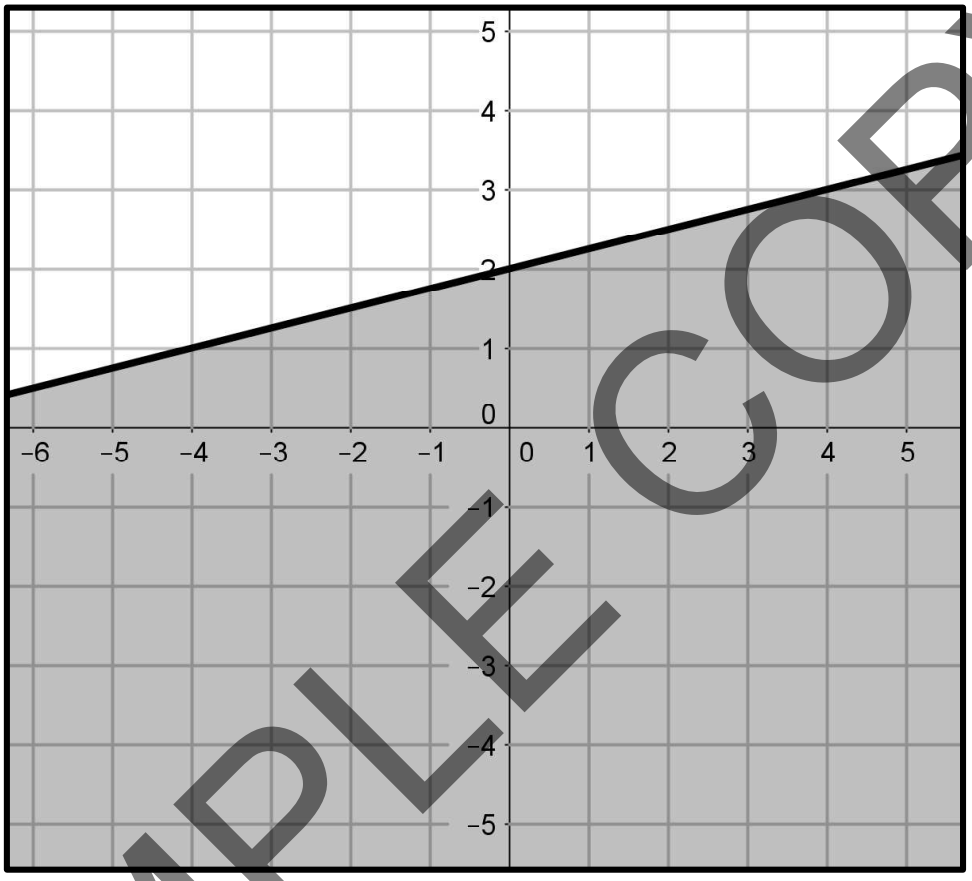


D



3 (A.3D)

Which function is represented by the graph below?



F $x - 4y \geq -8$

G $x - 4y > -8$

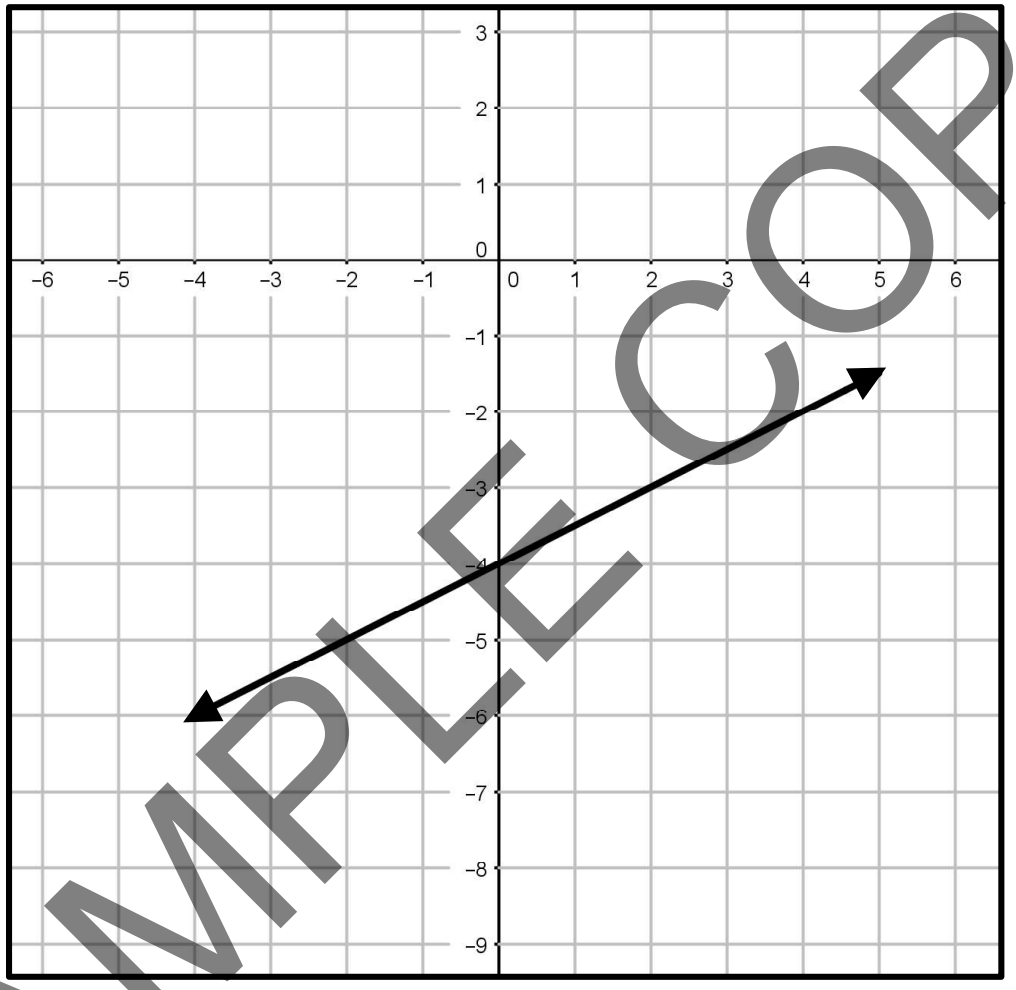
H $x - 4y < -8$

J $x - 4y \leq -8$

Spiral 37

1 (A.3D)

The graph shows the function $y = \frac{1}{2}x - 4$.



Which point would not be included in the function, $y > \frac{1}{2}x - 4$?

A (-1, -5)

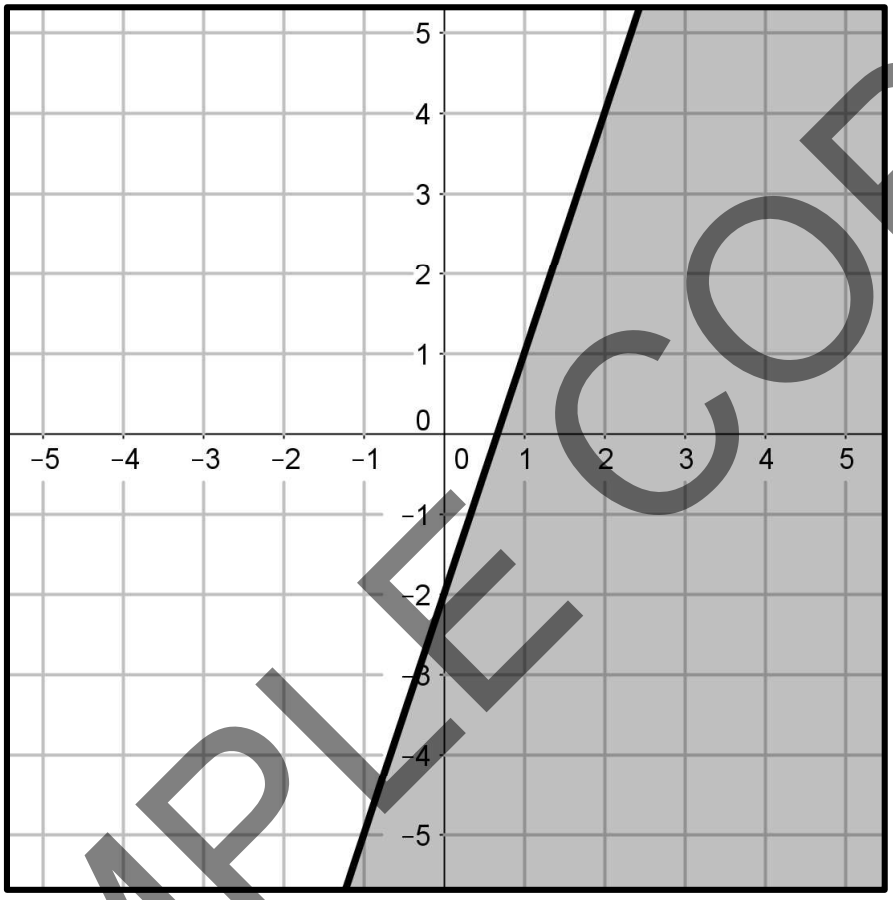
B (1, 5)

C (-5, 1)

D (5, 1)

2 (A.3D)

Which inequality is shown in the graph below?



F $y \leq 3x - 2$

G $y < -3x - 2$

H $y \leq 3x + 2$

J $y < -3x + 2$

3 (A.2H)

A student must score at least a 78 on her algebra test to maintain her B average. If each correct response, *r,* on the test is worth 3 points, write an inequality showing the relationship between the number of correct responses and her score.

A $f(r) \leq 78 + 3r$

B $f(r) \leq 78 - 3r$

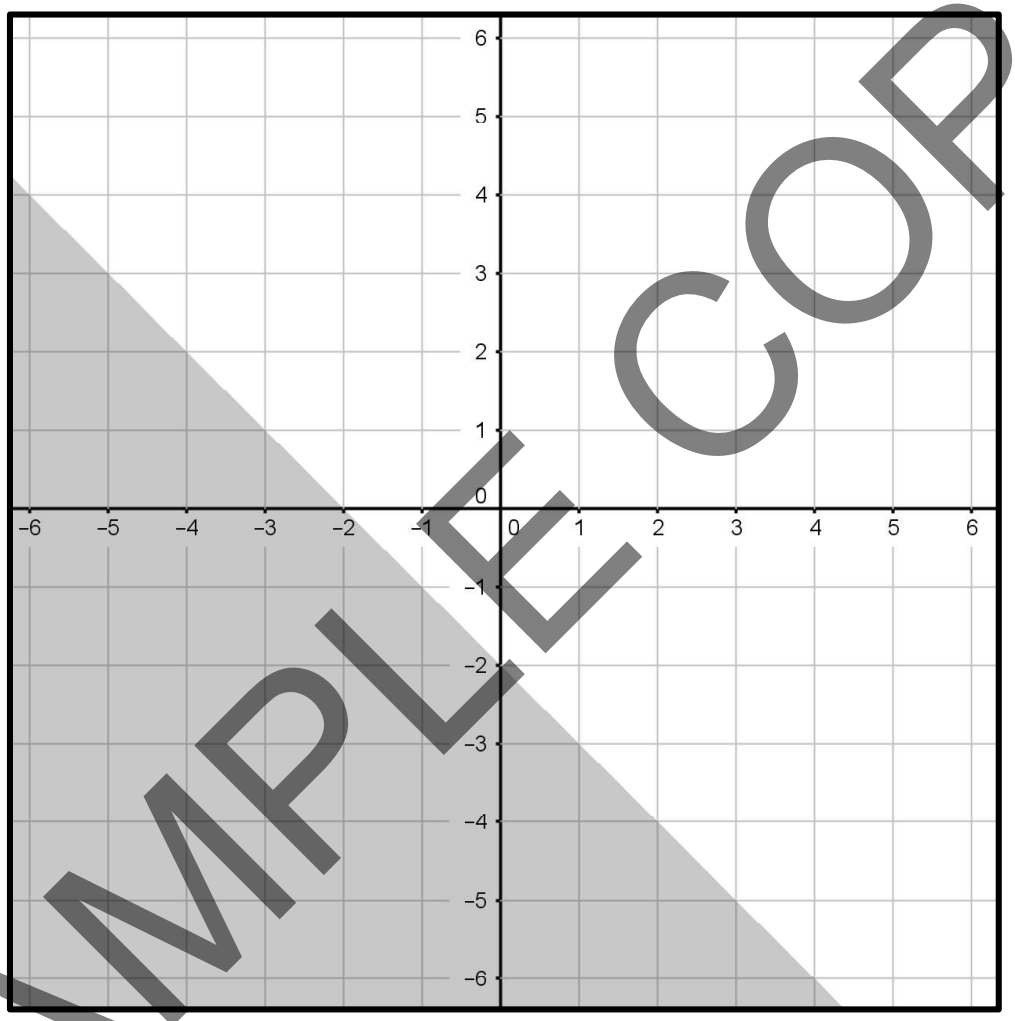
C $f(r) \geq 78 - 3r$

D $f(r) \leq 3(78 - r)$

Spiral 38

1 (A.2H)

Which inequality is shown in the graph below?



F $f(x) < x - 2$

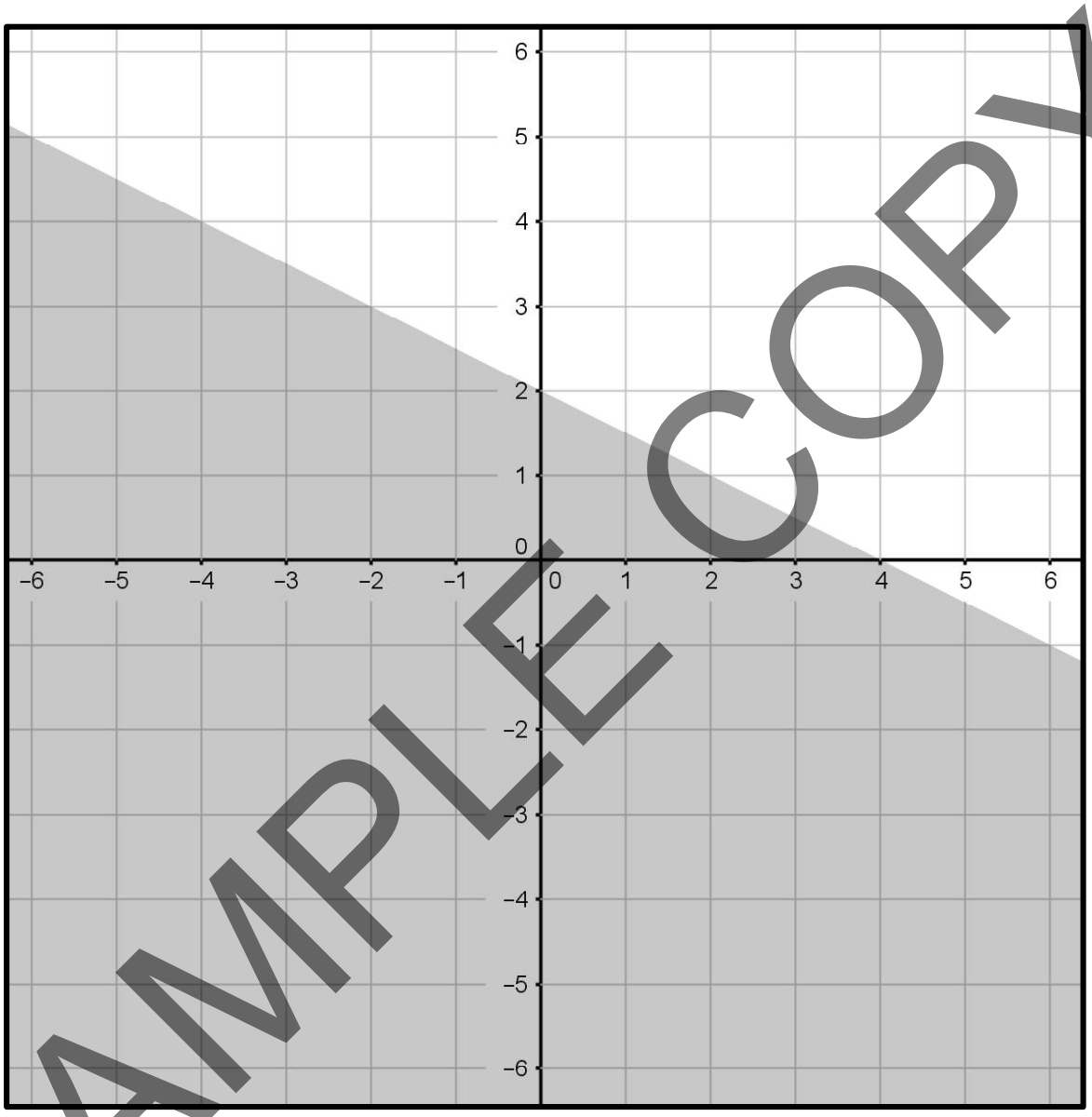
G $f(x) < -x - 2$

H $f(x) > -x + 2$

J $f(x) > -x + 2$

2 (A.2H)

Which inequality is shown in the graph below?



A $f(x) > -\frac{1}{2}x + 2$

B $f(x) \geq -\frac{1}{2}x + 2$

C $f(x) < -\frac{1}{2}x + 2$

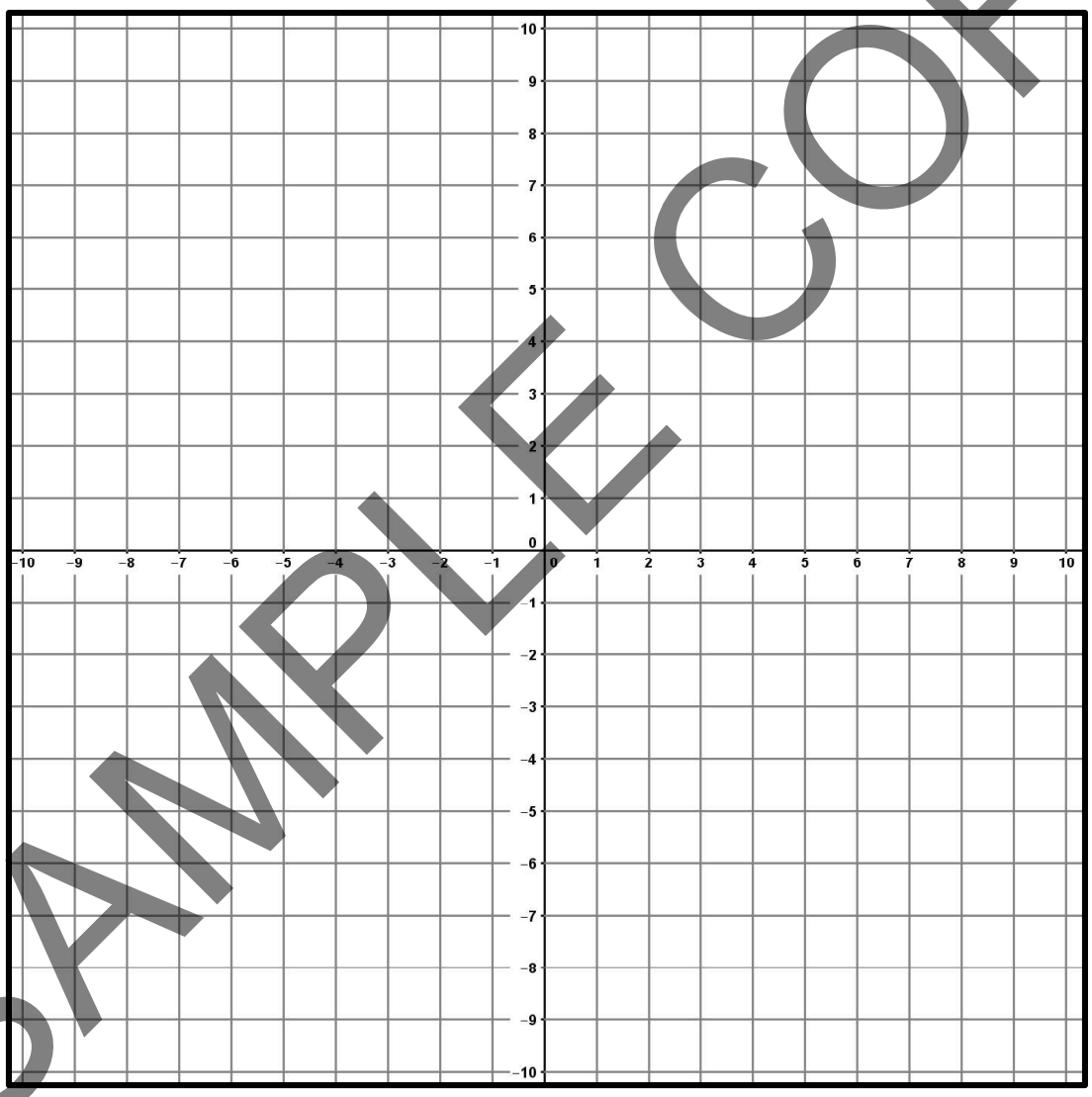
D $f(x) \leq -\frac{1}{2}x + 2$

3 (A.3F)

Graph the system of equations and determine its solution.

$$y = \frac{1}{4}x - 4$$

$$y = -x + 1$$



F (-3, 4)

G (3, -4)

H (4, -3)

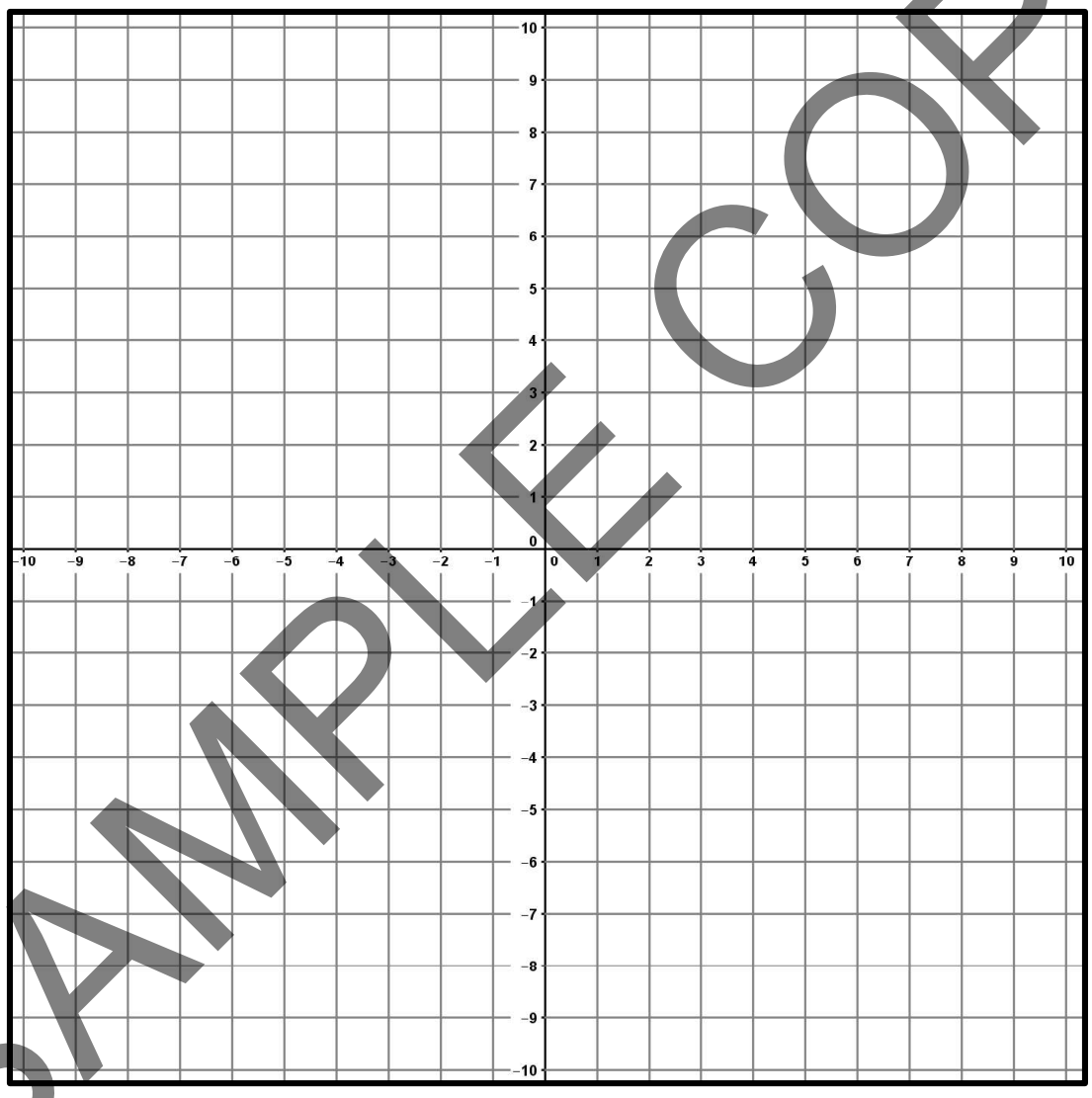
J (-4, 3)

Spiral 39

1 (A.3F)

Graph the system of equations and determine its solution.

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



A (1, 4)

B (1, -4)

C (4, -2)

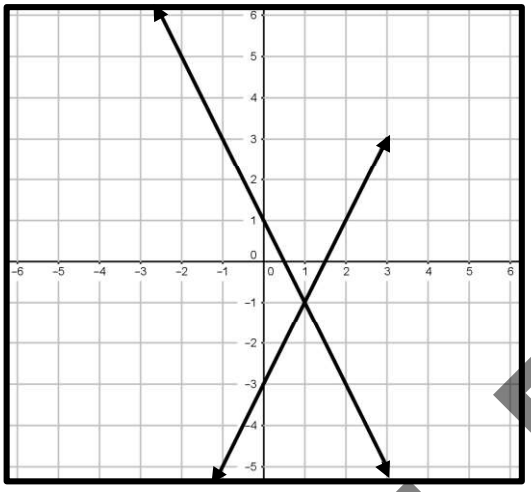
D no solution

2 (A.3F)

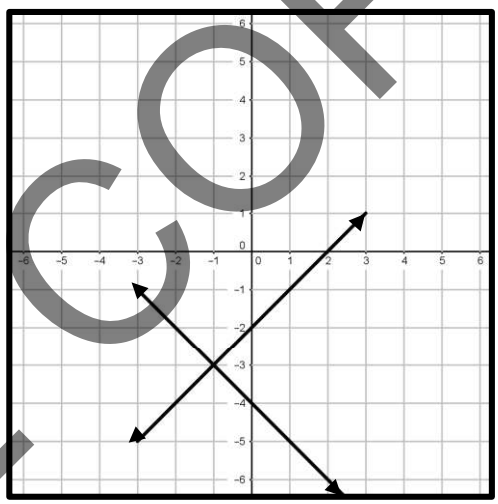
Which graph can be used to find the solution to the system of equations below?

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

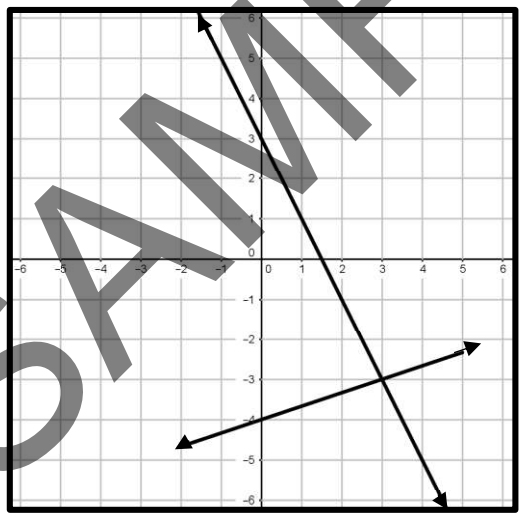
F



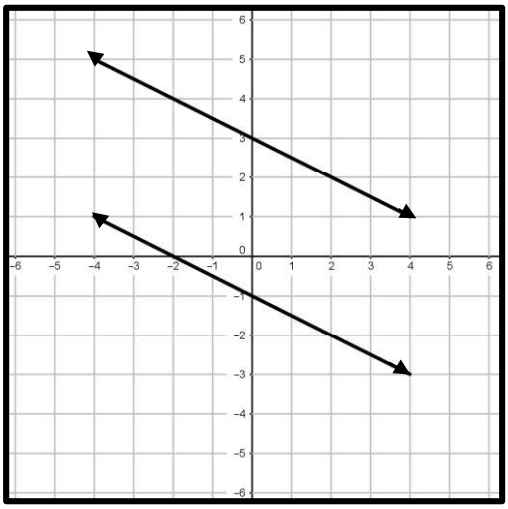
G



H



J



3 (A.2I)

A rental car company charges a flat rate of $80 plus $0.70 per mile, while another company charges a flat rate of $60 and $0.90 a mile. Which system of equations could be used to determine at how many miles the charges for both companies would be the same?

A $f(x) = 0.9x + 80$

$f(x) = 0.7x + 60$

B $f(x) = 0.9x - 80$

$f(x) = 0.7x – 60$

C $f(x) = 0.9x + 60$

$f(x) = 0.7x + 80$

D $f(x) = 90x + 80$

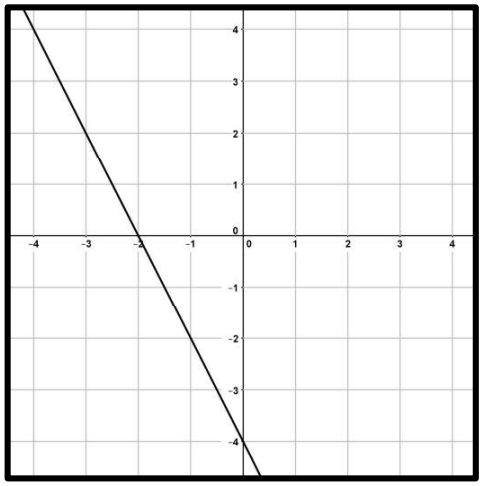
$f(x) = 70x + 60$

Spiral 40

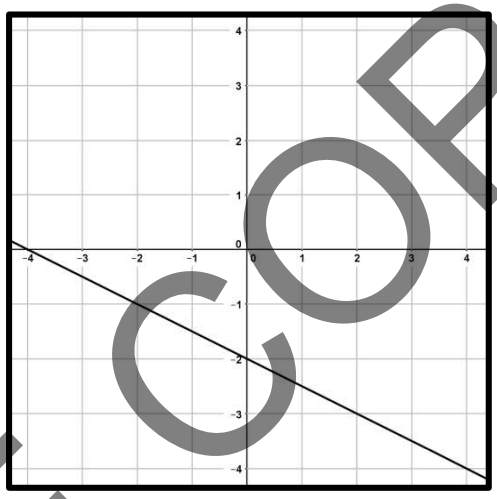
1 (A.3C)

Which graph shows a line with an x-intercept of -4?

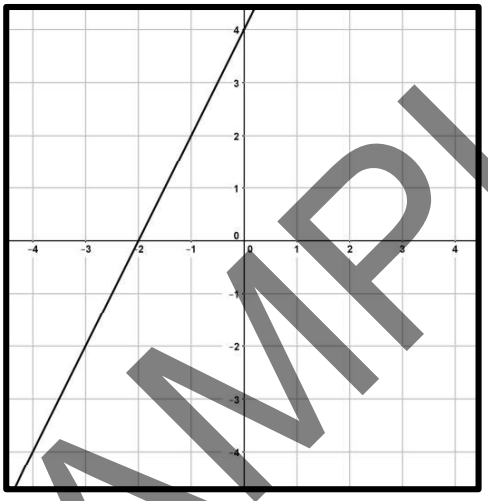
F



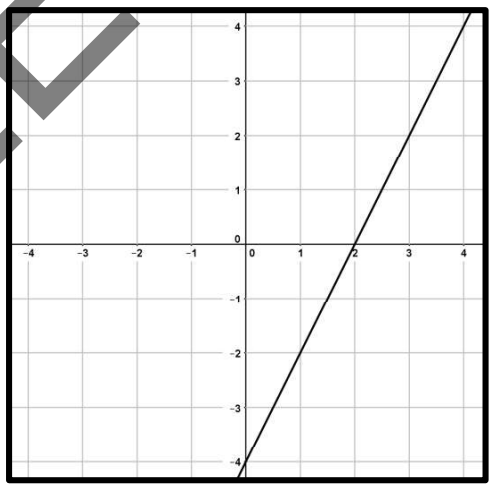
G



H



J



2 (A2I)

A jar contains a collection of nickels and quarters with a total of 21 coins. The value of the coins equals nine dollars. Which system of equations could be used to determine the number of nickels and the number of quarters in the jar?

A $n = 21 - q$
$0.05n + .25q = 9$

B $n = 21 + q$
$0.05n + .25q = 9$

C $n - q = 21$
$0.05n + .25q = 9$

D $n + q = 21$
$0.05n = 9 + .25q$

3 (A2I)

The total weight of two dogs is 20.6 kg. The difference in their weights is 12.8 kg. Which system of equations could be used to determine the weight of each dog?

F $y = -x + 20.6$
$y + x = 12.8$

G $y = -x - 20.6$
$y = x - 12.8$

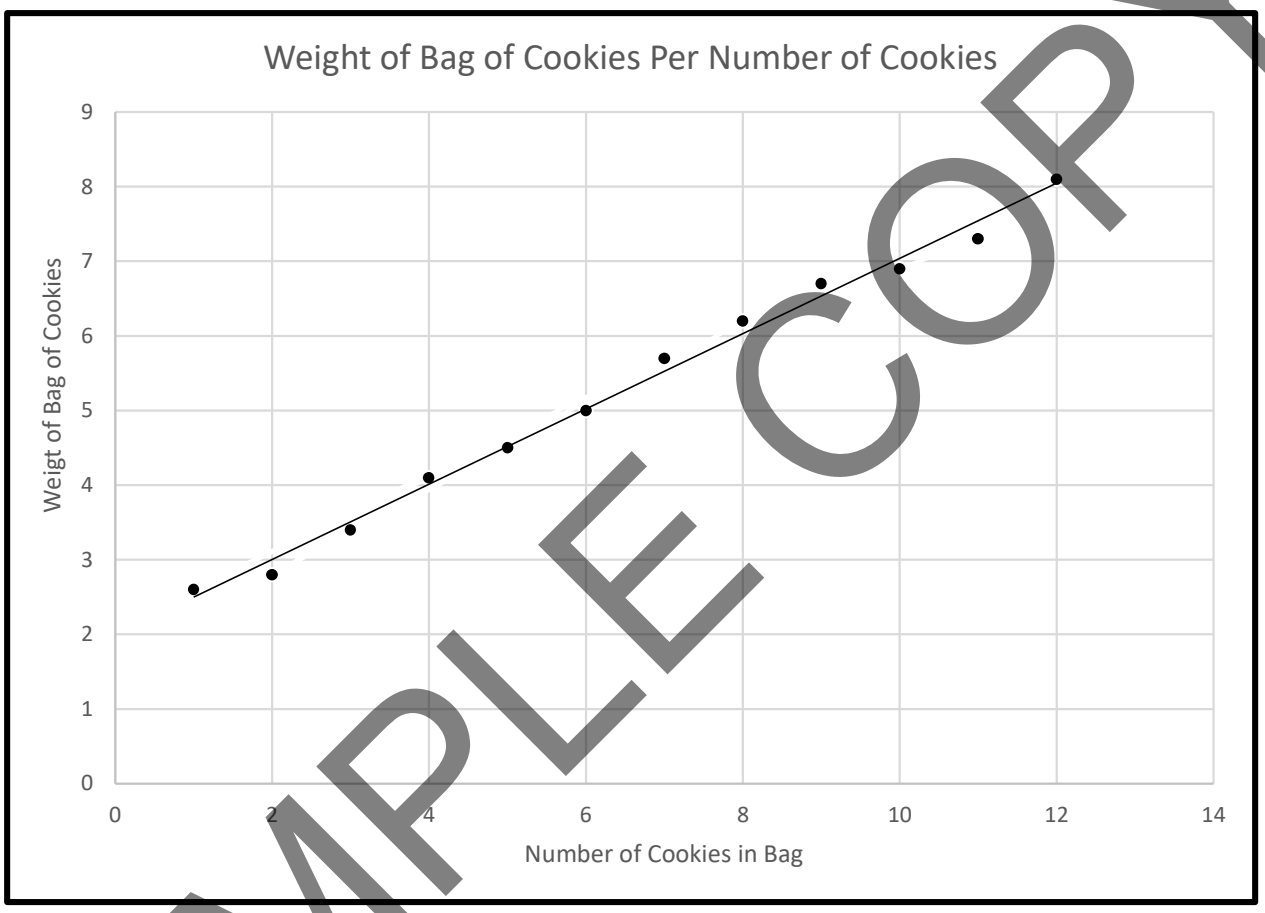
H $y = -x + 12.8$
$y = x + 20.6$

J $y = -x + 20.6$
$y = x - 12.8$

Spiral 41

1 (A.4C)

The graph shows the relationship between the total weight of a bag of cookies and the number of cookies in the bag.



What is the weight of the bag before cookies are added?

A 1 ounce

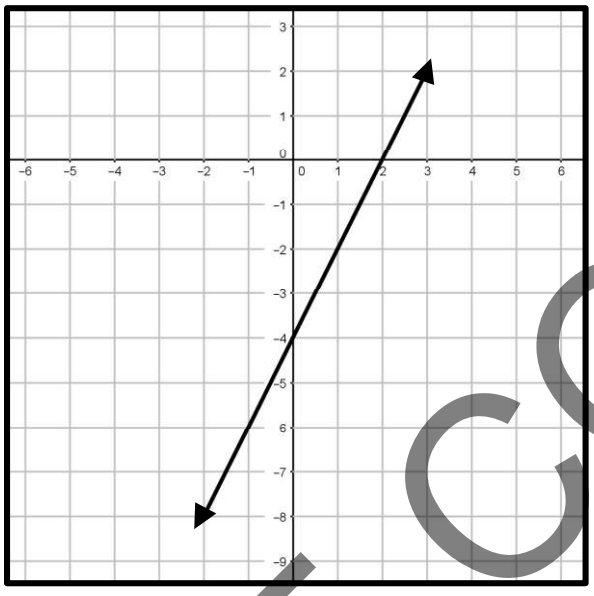
B cannot be determined from the data given

C 2 ounces

D the initial weight depends on the number of cookies

2 (A.3D)

The graph below shows the function, $2x - y = 4$.



Which point would not be included in the function, $2x - y \leq 4$?

F (-2, 2) **G** (-2, -2) **H** (2, -2) **J** (2, 2)

3 (A.2I)

A jar contains a collection of nickels and dimes with a total of 15 coins. The value of the coins equals $5.10. Which system of equations could be used to determine the number of nickels and the number of dimes in the jar?

A 15 – d = n
0.05d = 5.1 – 0.1n

B 15 + d = n
0.05n = 5.1 – 0.1d

C 15 – d = n
0.05n = 5.1 – 0.1d

D d - 15 = n
0.05n = 5.1 – 0.1d

Spiral 42

1 (A.2I)

The sum of two consecutive even numbers is 158. Which system of equations could be used to determine the two numbers?

F x – y = 158

y = x - 2

G x + y = 158

y = 2x

H x = 158 + y

y = x + 2

J x + y = 158

y = x + 2

2 (A.5B)

Which inequality describes all the solutions to $2 + x \geq -(x + 4)$?

A $x \geq -1$

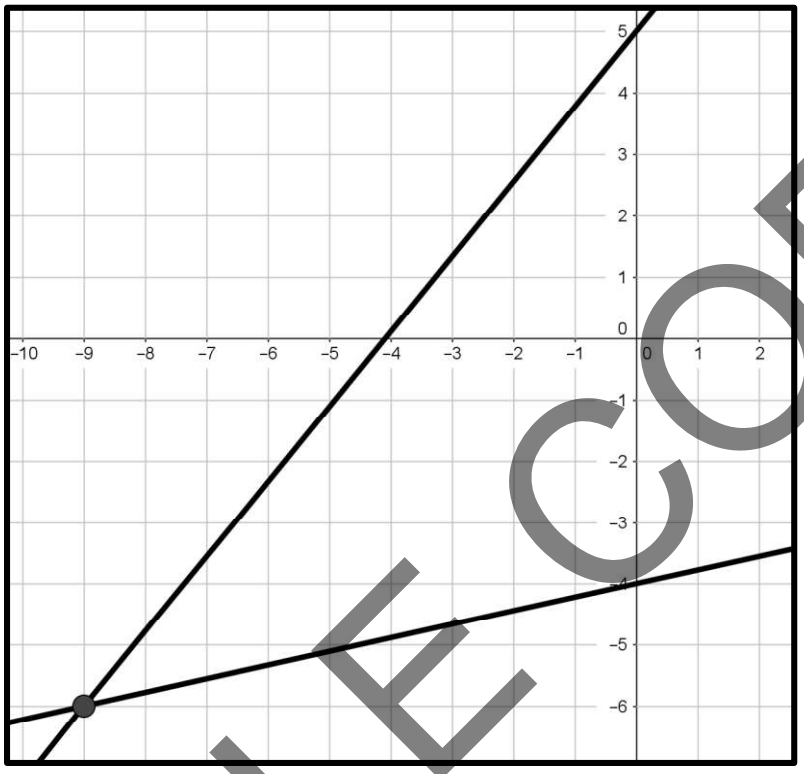
B $x \leq -1$

C $x \geq 0$

D $x \geq -3$

3 (A.2I)

Write the system of equations represented by the graph below.



F $y = \frac{2}{9}x - 4$

$y = \frac{11}{9}x + 5$

G $y = \frac{2}{9}x + 4$

$y = \frac{11}{9}x - 5$

H $y = -\frac{2}{9}x + 4$

$y = \frac{11}{9}x - 5$

J $y = \frac{9}{2}x + 4$

$y = \frac{9}{11}x - 5$

Spiral 43

1 (A.3A)

What is the slope of the line represented by the table below?

x	y
-3	4
-1	4
1	4
3	4

A undefined

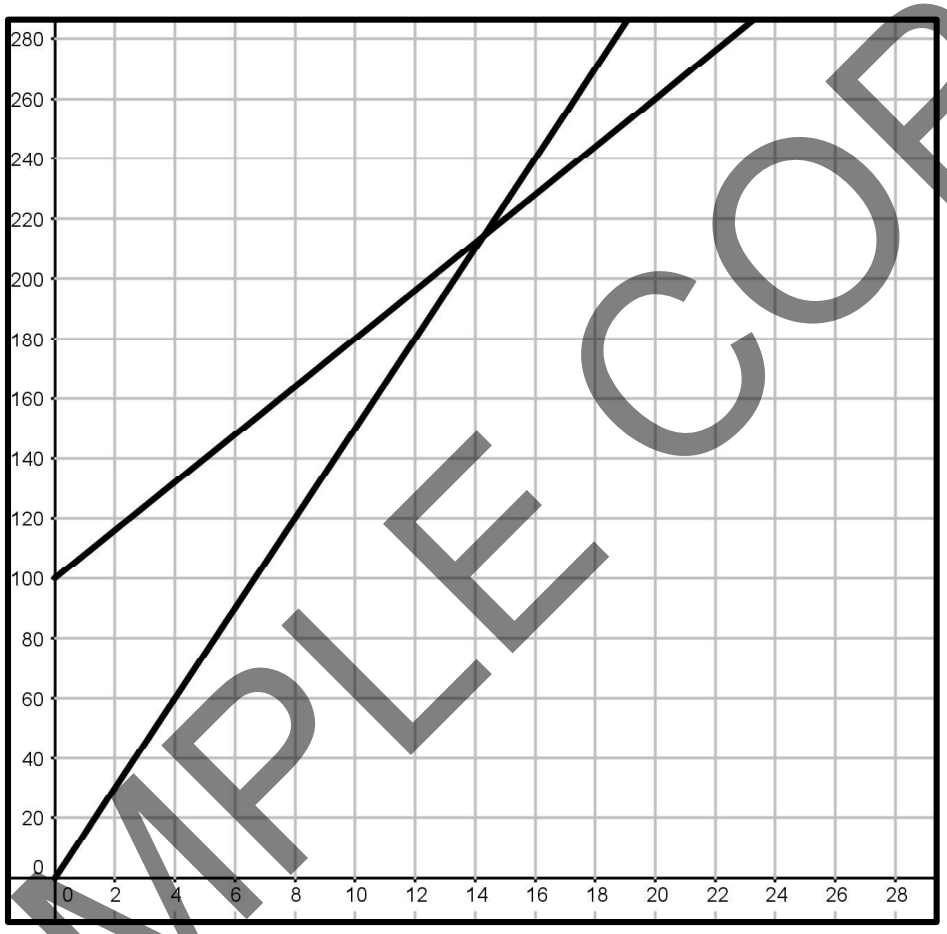
B 4

C 0

D $-\frac{3}{4}$

2 (A.3G)

The cheer squad is selling t-shirts. There is a $100 customized logo fee and each t-shirt costs the squad an additional $8. They plan to sell the shirts for $15 each. Use the graph below to determine how many shirts they must sell to begin to make a profit.



F at least 13 shirts

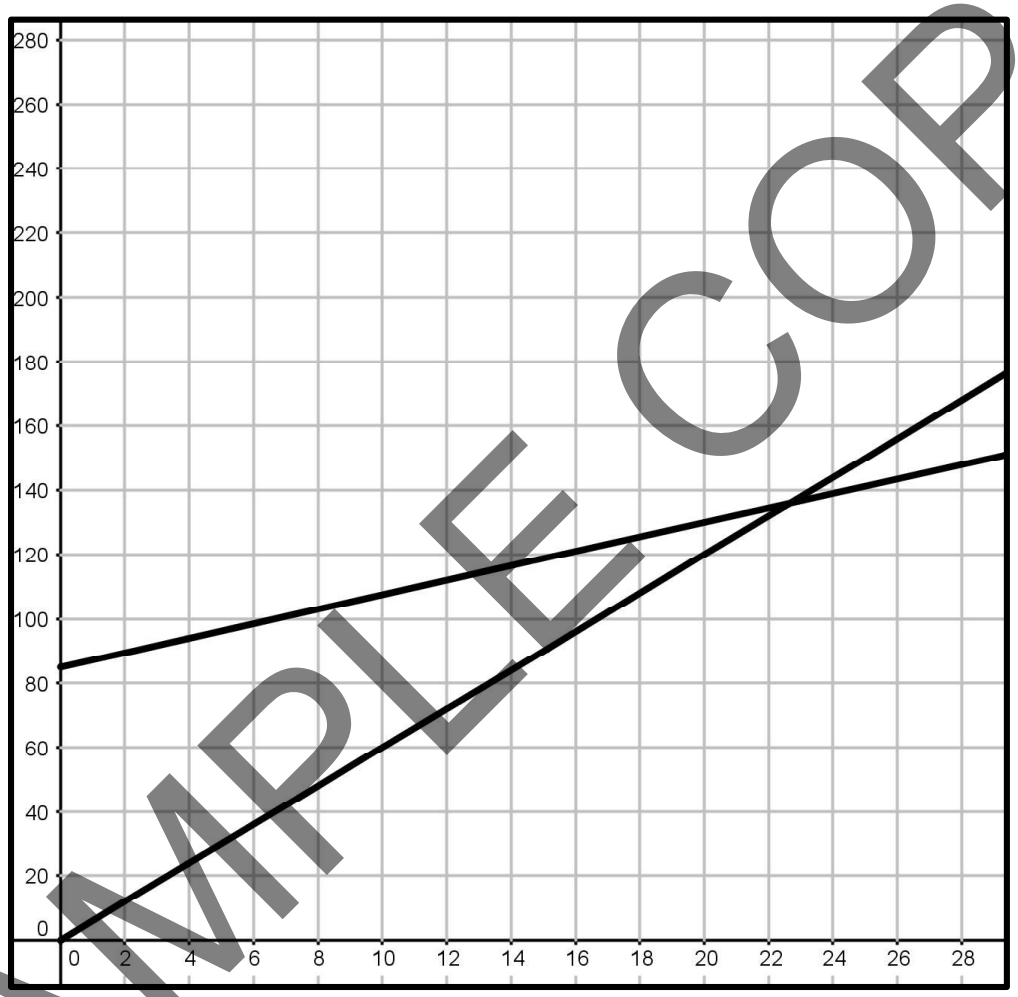
G at least 15 shirts

H at least 200 shirts

J at least 210 shirts

3 (A.3G)

The band is selling salsa. Each jar of salsa costs the band $2.25 with a flat rate shipping and handling charge of $85. They plan to sell the salsa for $6 per jar. Use the graph below to determine the minimum number of jars of salsa they must sell to begin to make a profit.



A at least 140

B at least 22

C at least 135

D at least 23

Spiral 44

1 (A.2B)

Write the slope-intercept for of the equation of a line with a slope of -2, and passing through (-3, -5).

F $y = -2x - 1$

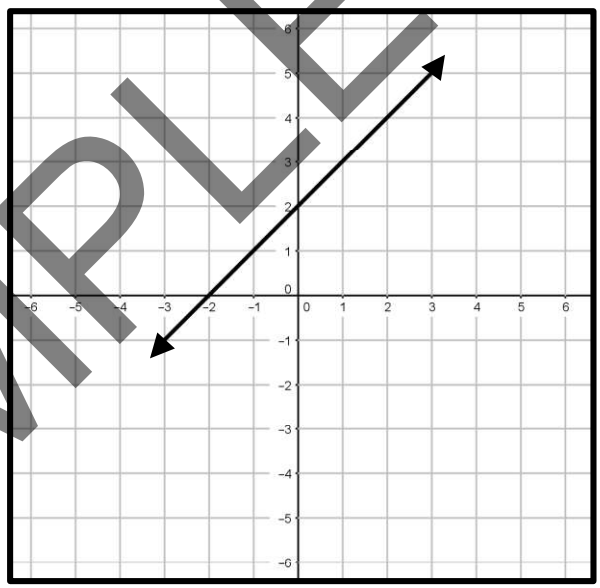
G $y = -11x - 2$

H $y = -2x - 11$

J $y + 4 = \frac{8}{3}(x + 3)$

2 (A.3D)

The graph below shows the function, $x - y = -2$.

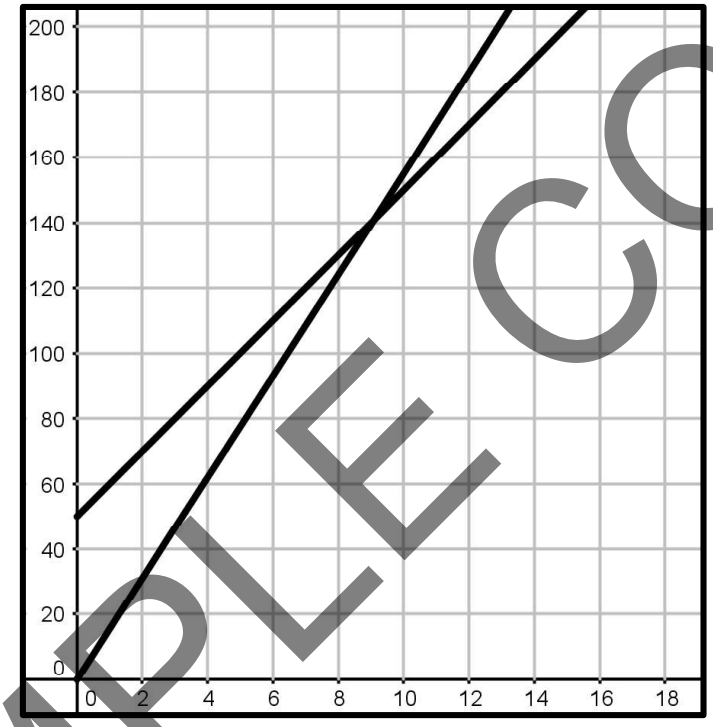


Which inequality would include the point, (2, 4)?

A $x - y > -2$ **B** $x - y \geq -2$ **C** $x - y \geq 2$ **D** $x - y < -2$

3 (A.3G)

Balloon A is released from an altitude of 50 meters and gains altitude at a rate of 10 meters per second. Balloon B is launched at sea level and gains altitude at a rate of 15.5 meters per second. Use the graph below to determine which statement is correct.



F The balloons both reach a height of approximately 120 meters at 8 seconds after launch.

G Due to its higher rate of ascent Balloon B always reaches higher altitudes before Balloon A.

H The balloons both reach a height of approximately 140 meters at 9 seconds after launch.

J At ten seconds after launch, Balloon B is approximately 30 meters higher than Balloon A.

Spiral 45

1 (A.5C)

What is the solution to this system of equations?

$$13x + 11 + y = 0$$
$$3x = 3 - 3y$$

A (-2, 0)

B (9, -3)

C (-1, 4)

D (-1, 2)

2 (A.5C)

What is the solution to this system of equations?

$$-2x = 24 + 6y$$
$$6 = -3y - x$$

F no solution

G (-1, 2)

H (5, 7)

J infinitely many solutions

3 (A.5C)

On the first day of ticket sales for the spring play, a student sold 7 adult tickets and 3 child tickets for a total of $82. On the second day of sales the student sold 7 adult tickets and 6 child tickets for a total of $94. What is the price each for one adult ticket and one child ticket?

A adult $5; child $3

B adult $10; child $4

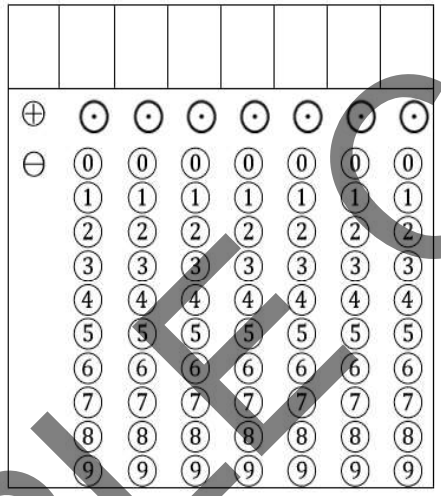
C adult $5; child $4.50

D adult $8; child $4

Spiral 46

1 (A.5C)

A bag contains 39 coins, all nickels and quarters. The total value of the coins in the bag is $6.35. How many of the coins are nickels? Record your answer and fill in the bubbles below.

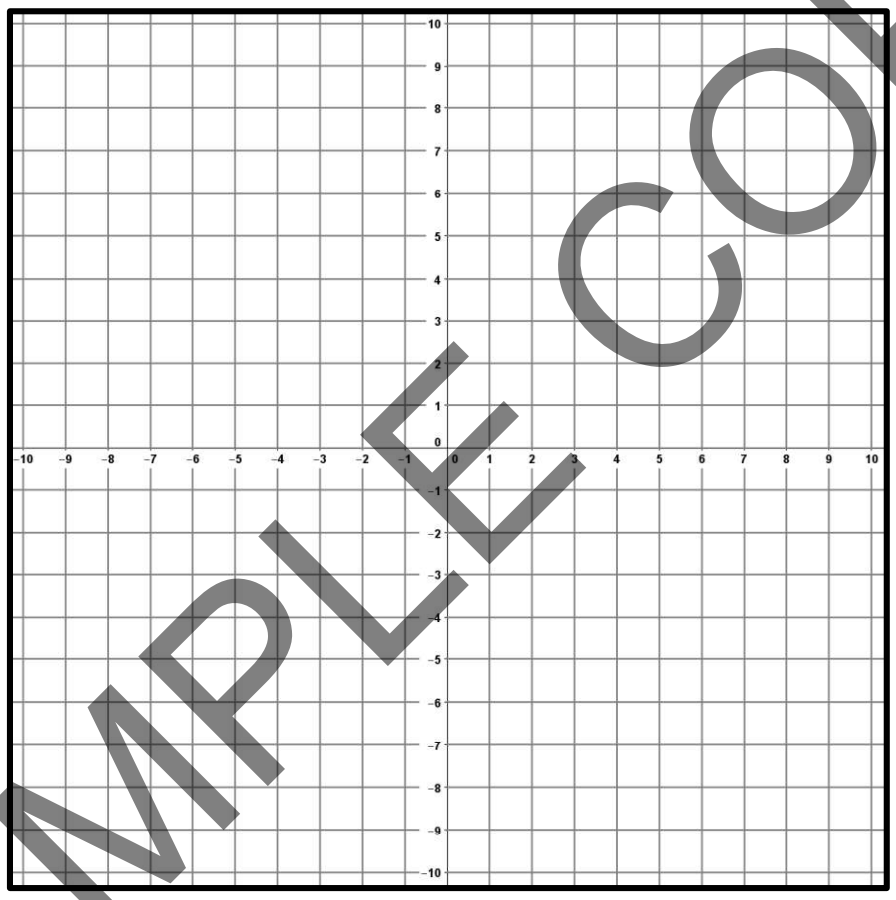


2 (A.3F)

Graph the system of equations and determine its solution.

$$y = \frac{5}{4}x + 3$$

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



A (3, 4)

B (3, -4)

C (4, 5)

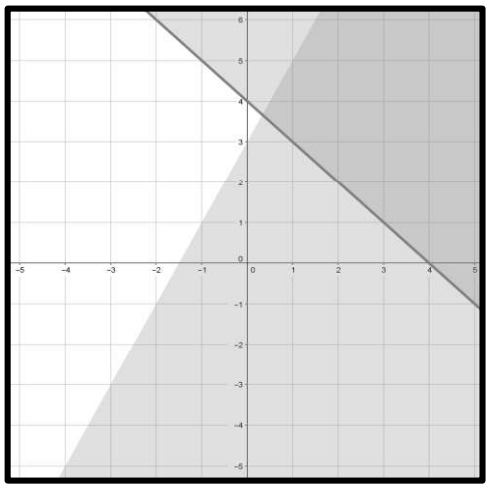
D no solution

3 (A.3H)

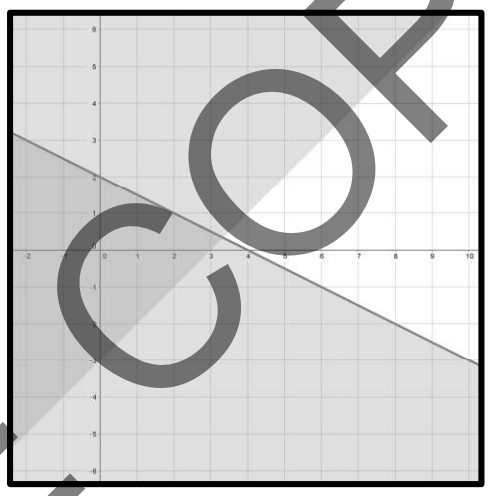
Which graph represents the system of inequalities?

$$2x - y > -3$$
$$x + y \geq 4$$

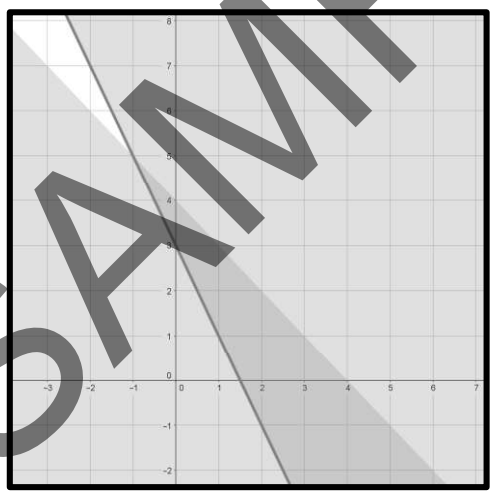
F



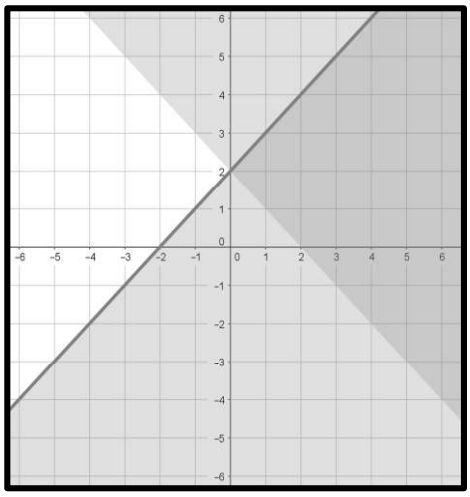
G



H



J



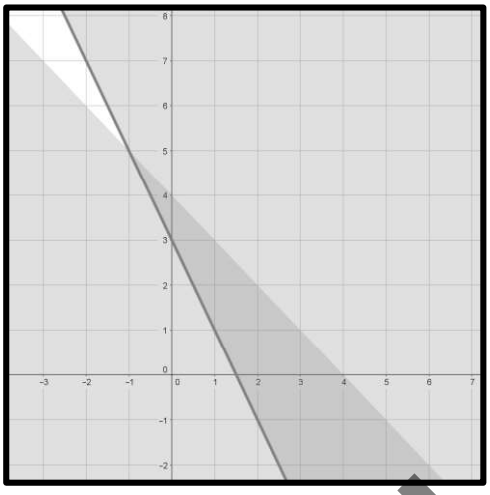
Spiral 47

1 (A.3H)

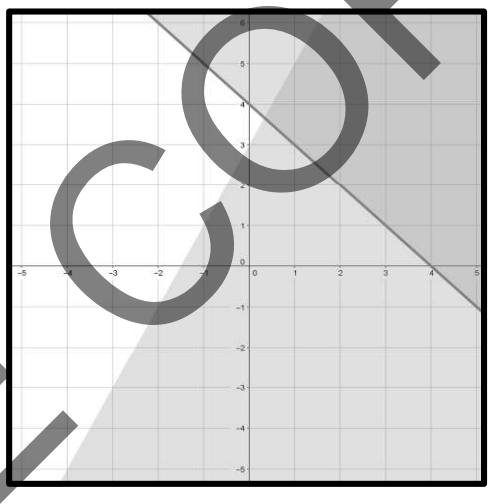
Which graph represents the system of inequalities?

$$x + 2y \leq 4$$
$$x - y < 3$$

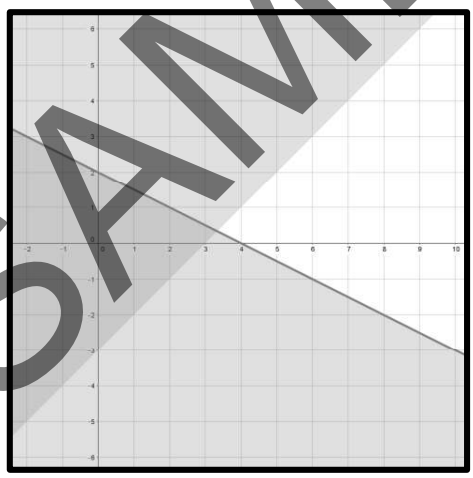
A



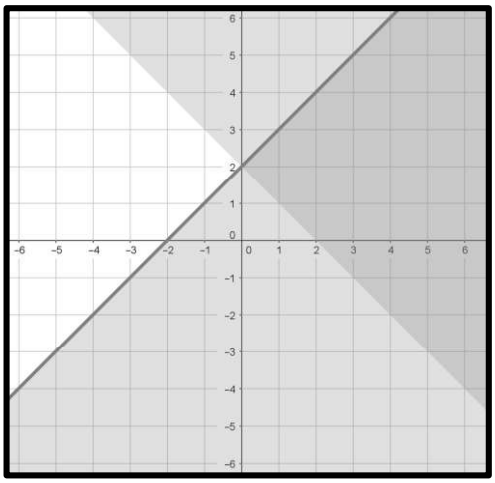
B



C



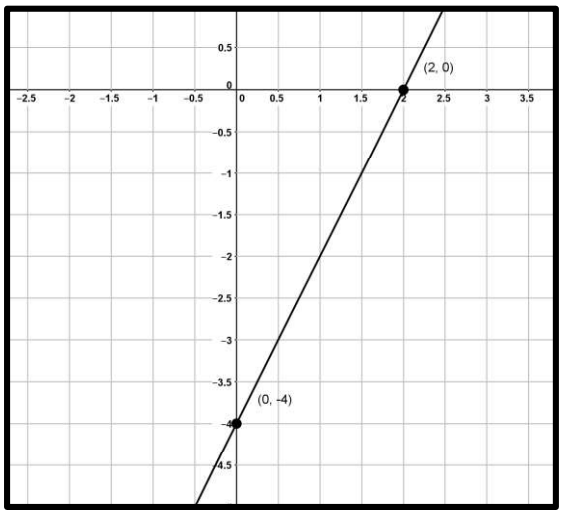
D



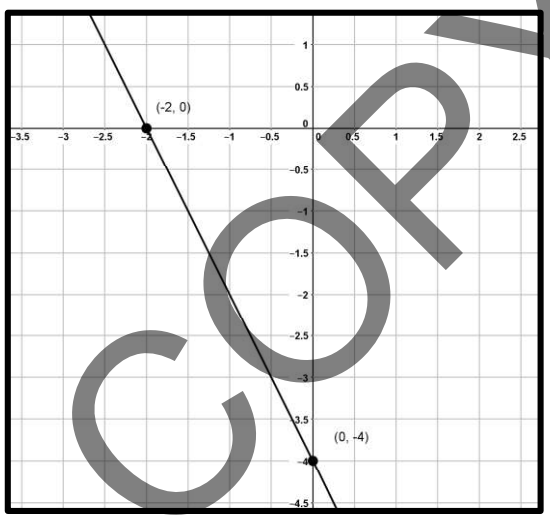
2 (A.3C)

Which graph represents $2x + y = 4$?

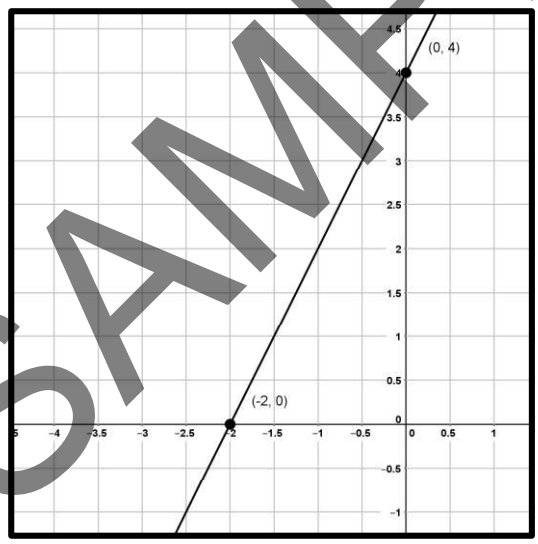
F



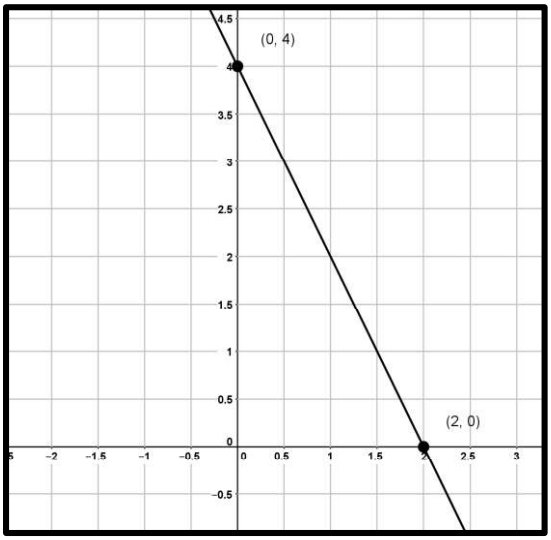
G



H



J

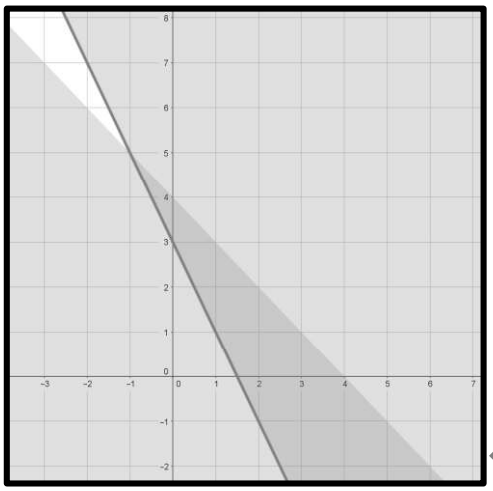


3 (A.3H)

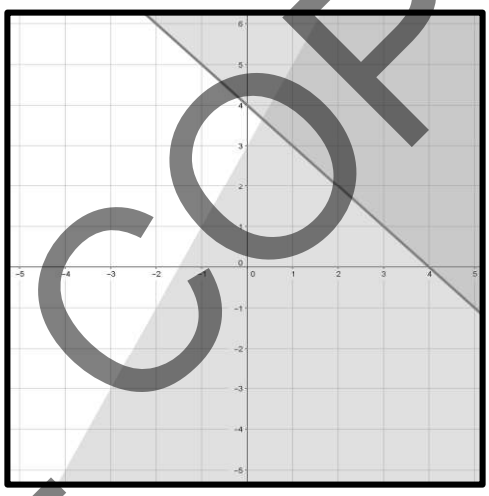
Which graph represents the system of inequalities,

$$x + y > 2$$
$$x - y \geq -2$$

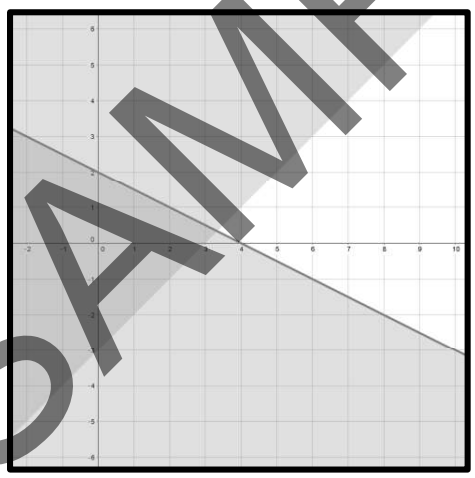
A



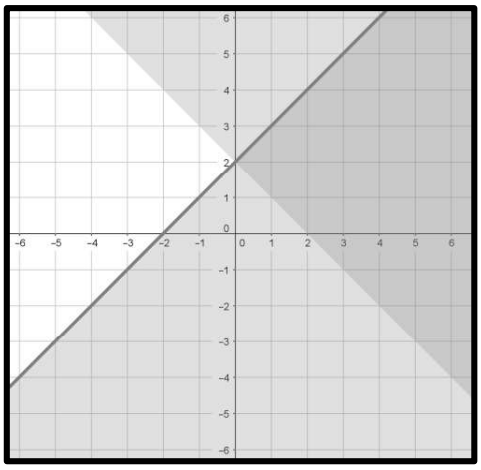
B



C



D



SpiralEd Solutions

Spiral 48

1 (A.2C)

The cost of renting a banquet hall requires a flat rate cleaning fee of $225 dollars and $75 dollars for each hour rented. Which equation represents the total cost of the rental as a function of the number of hours rented, h?

F $f(h) = 75h + 225$

G $f(h) = 225h + 75$

H $f(h) = 225(h + 75)$

J $f(h) = 75(h + 225)$

2 (A.2A)

The domain for the function, $f(x) = -2x + 3$, is $\{-7, -5, 1, 3, 9\}$. Which of the following is not part of the range?

A 11

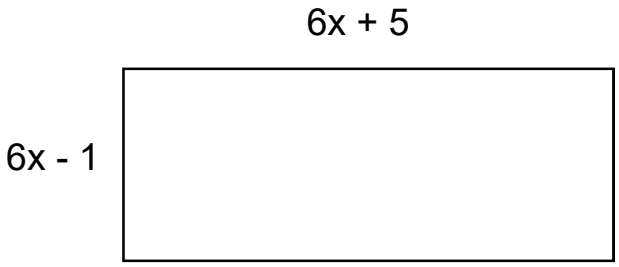
B 17

C -3

D 1

3 (A.10B)

The diagram shows the dimensions of a rectangular pool. All dimensions are given in feet.



Which expression represents the area of the pool in square feet?

F $36x^2 + 24x - 5$

G $36x^2 + 36x - 5$

H $36x^2 - 24x + 5$

J $36x^2 - 24x - 5$

Spiral 49

1 (A.4B)

A botanist observed that plants growing in a lab with no music grew more slowly than the plants growing in another lab with music playing. She concluded that the music caused the plants to grow more quickly. What is the best analysis of her conclusion?

A Her conclusion is invalid, because her observation involved more than one variable due to possible differences between the two labs.

B Her conclusion is valid, because her experiment shows a strong association between plant growth and music.

C Her conclusion is valid, because she is a botanist and made her observations in a lab.

D Her conclusion is invalid, because she did not maintain control over the type of music being played.

2 (A.5C)

What is the solution to this system of equations?

$$x - 4y = 72$$
$$8y - 136 + 33x = 0$$

F (8,-16)

G (-4, 13)

H (-5, 10)

J (12, -10)

3 (A.3G)

Hiker A starts hiking from a campground 2 miles from the trailhead and hikes at a rate of 3.2 miles per hour. Hiker B starts from the trailhead and hikes at a rate of 4.1 miles per hour. Approximately where does Hiker B pass Hiker A?

A Hiker B overtakes Hiker A about 9 miles from the trailhead.

B Hiker B never overtakes Hiker A.

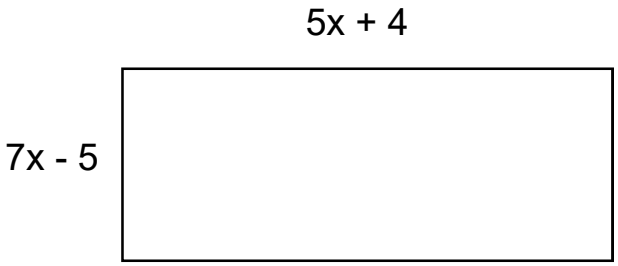
C Hiker B overtakes Hiker A about 8 miles from the trailhead.

D Hiker A overtakes Hiker B about 2.25 miles from the trailhead.

Spiral 50

1 (A.10B)

The diagram shows the dimensions of a rectangular garden. All dimensions are given in feet.



Which expression represents the area of the garden in square feet?

F $35x^2 + 53x - 20$

G $35x^2 + 3x - 20$

H $35x^2 - 3x + 20$

K $35x^2 - 3x - 20$

2 (A.12E)

The formula for the median of a trapezoid is $m = \frac{b_1 + b_2}{2}$. Using this information, determine the formula for finding b_1, when the median and b_2 are known.

A $b_1 = 2m + b_2$

B $b_1 = \frac{2m}{b_2}$

C $b_1 = \frac{b_2}{2m}$

D $b_1 = 2m - b_2$

3 (A.10B)

Which expression is equivalent to $(3x - 8)(x + 7)$?

F $3x^2 - 13x - 56$

G $3x^2 - 13x + 56$

H $3x^2 + 13x - 56$

J $3x^2 + 13x + 56$

Spiral 51

1 (A.10E)

Which expression is equivalent to $x^2 + x - 56$?

A $(x - 7)(x + 8)$

B $(x - 2)(x + 28)$

C $(x + 2)(x - 28)$

D $(x + 7)(x + 8)$

2 (A.2I)

At a local bake sale, pies sell for $8 each, and cakes sell for $10 each. On Friday, a total of 37 cakes and pies were sold for a profit of $326. Which system of equations can be used to determine the number of cakes sold and the number of pies sold on Friday?

F $8p + 10c = 37$

$p + c = 326$

G $8p + 10c = 326$

$p + c = 37$

H $10p + 8c = 326$

$p + c = 37$

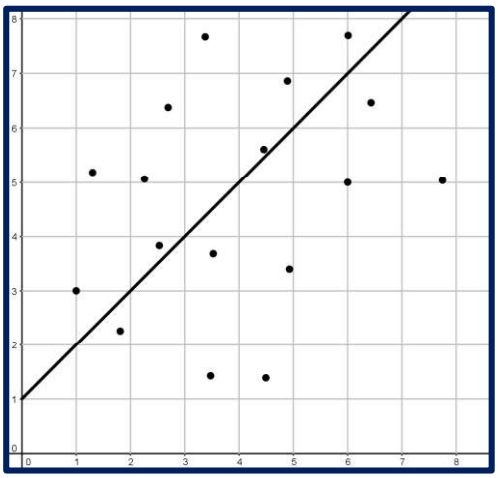
J $8p + 10c = 326$

$c = 37 + p$

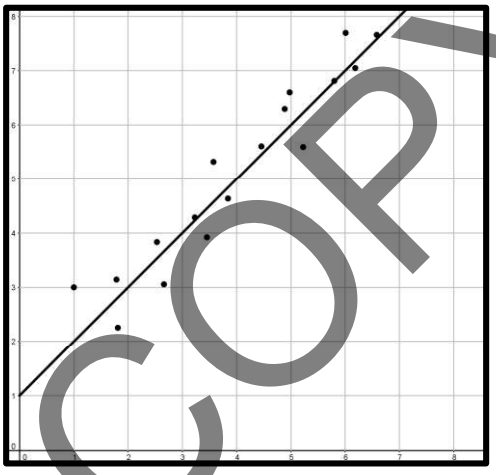
3 (A.4A)

Each graph shows a scatterplot with a line of best fit. Which graph shows the data set with a correlation coefficient closest to zero?

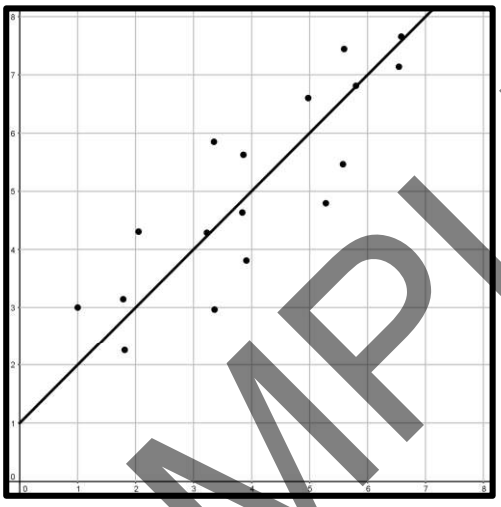
A



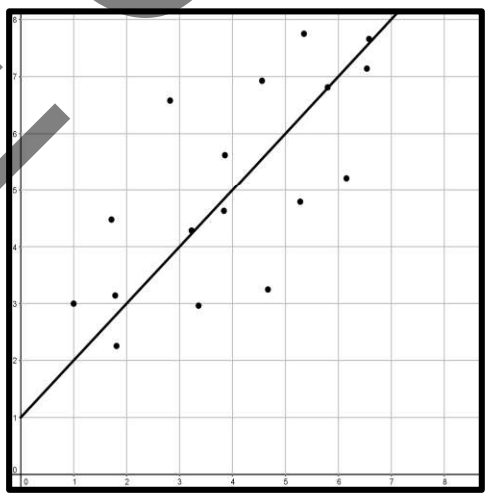
B



C



D



SpiralEd Solutions

Spiral 52

1 (A.2F)

Write the equation for a line passing through (4, 2) and perpendicular to $2x + 3y = -9$.

F $y = -\frac{2}{3}x + 1$

G $y = \frac{3}{2}x + 3$

H $y = \frac{2}{3}x + 5$

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

2 (A.10E)

Which expression is a factor of $x^2 + 13x + 36$?

A (x – 9)

B (x + 4)

C (x + 12)

D (x + 6)

3 (A.10E)

Which expression is equivalent to $x^2 + 12x + 36$?

F (x + 9)(x + 4)

G (x – 6)(x + 6)

H $(x + 6)^2$

J (x + 2)(x + 18)

SpiralEd Solutions

Spiral 53

1 (A.2E)

Write the equation for a line passing through (3, 3) and parallel to $2x + 3y = -9$.

A $y = -\frac{2}{3}x + 1$

B $y = \frac{3}{2}x + 3$

C $y = \frac{2}{3}x + 5$

D $y = -\frac{2}{3}x + 5$

2 (A.10E)

Which expression is a factor of $x^2 + 4x - 5$?

F (x + 1)

G (5 – x)

H (-1 – x)

J (x + 5)

3 (A.10E)

Which expression is equivalent to $x^2 - 11x + 24$?

A (x – 3)(x – 8)

B (x – 6)(x – 4)

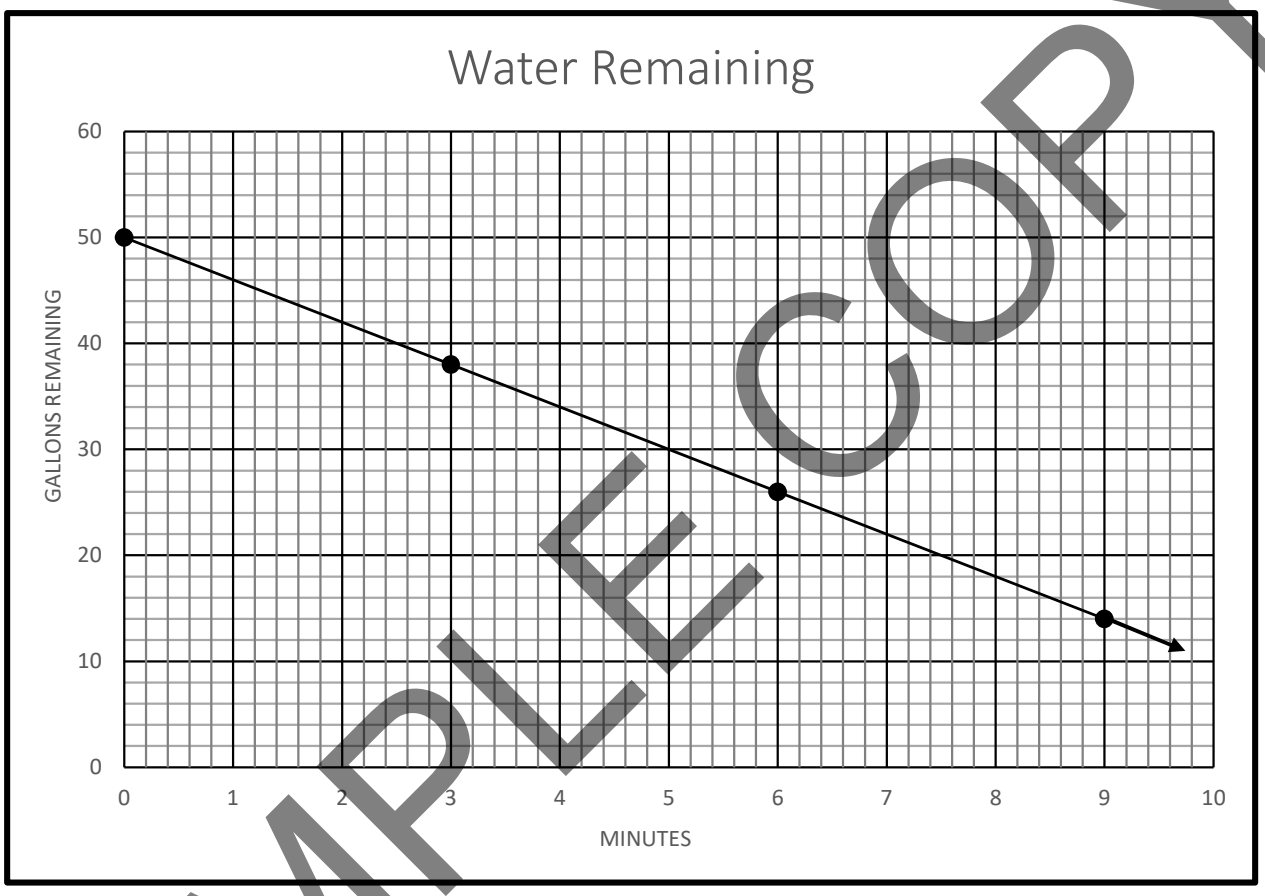
C (x + 2)(x – 12)

D (x – 24)(x – 1)

Spiral 54

1 (A.3B)

The graph below shows the number of gallons of water remaining in a 50-gallon tank as it is being emptied.



What is the rate of change for the data shown by the graph?

F $\frac{1}{4}$

G $-\frac{1}{13}$

H -4

J 4

2 (A.10F)

Which expression is a factor of $81x^2 - 36$?

A $(9x + 4)$

B $(9x - 6)$

C $(4x - 9)$

D $(9x + 3)$

3 (A.10F)

Which expression is a factor of $121x^2 - 4$?

F $(11x - 2)$

G $(11x + 4)$

H $(11x - 1)$

J $(11x + 1)$

Spiral 55

1 (A.10F)

Which expression is a factor of $49x^2 - 16$?

A $(7x - 2)$ **B** $(7x + 4)$

C $(7x - 8)$ **D** $(7x + 8)$

2 (A.10F)

Which expression is a factor of $16x^2 - 144$?

F $(8x - 12)$ **G** $(4x + 72)$

H $(4x - 12)$ **J** $(16x + 48)$

3 (A.3A)

What is the slope of the line represented by the table below?

x	y
-3	4
-3	6
-3	8
-3	10

A undefined **B** -2

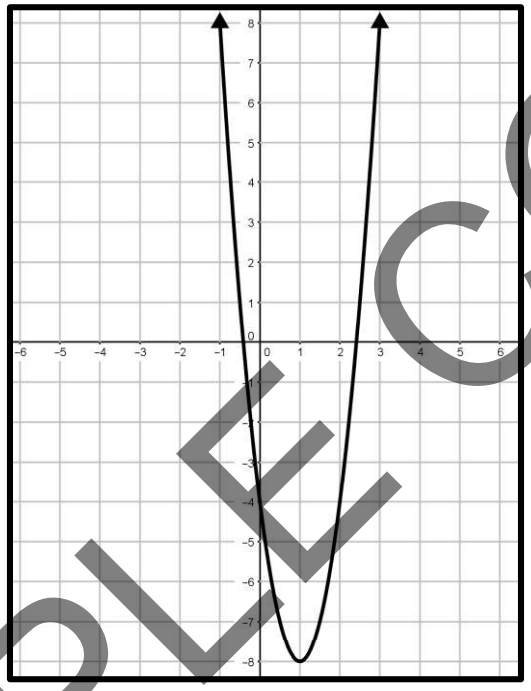
C 0 **D** $-\frac{3}{4}$

Spiral 56

1 (A.7A)

A graph of $f(x) = 4x^2 - 8x - 4$ is shown on the grid.

What is the y-intercept of f ?



F -4

G -0.41 and 2.41

H 1

J -8

2 (A.2H)

A cheer squad has a budget of $3,500. They purchase 12 megaphones at $65 each. Write an inequality showing the relationship between the remaining amount in their budget and the amount of money (m) they can spend for each of 12 uniforms.

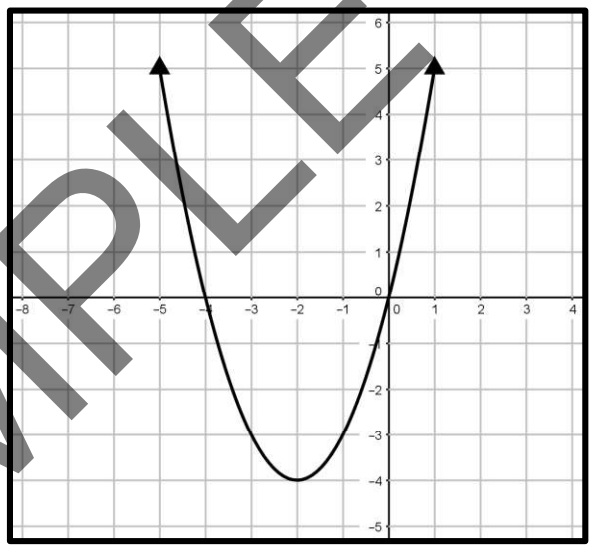
A $f(m) \leq 3500 - (12m - 780)$ **B** $f(m) \leq 3500 - (12m + 780)$

C $f(m) \leq 3500 - (12m + 65)$ **D** $f(m) \leq 3500 - 12(m - 65)$

3 (A.7A)

A graph of $y = x^2 + 4x$ is shown on the grid.

What are the x-intercepts of this function?



F -2, 0

G -2, -4

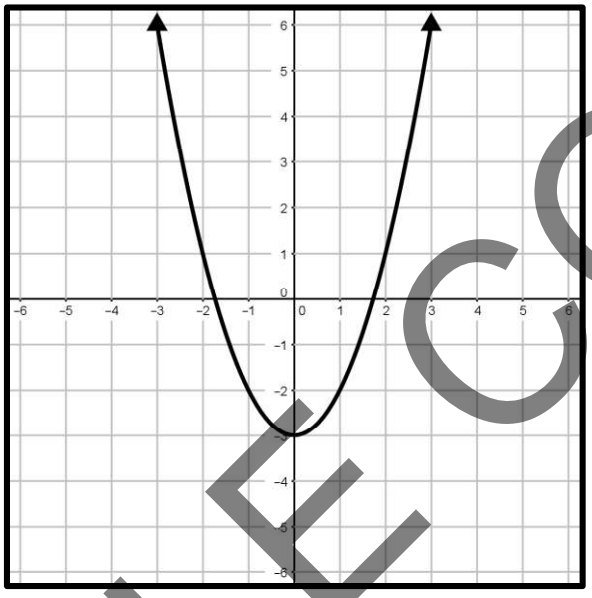
H -4, 0

J -6, 1

Spiral 57

1 (A.7A)

A graph of $y = x^2 - 3$ is shown on the grid. What is the axis of symmetry for this function?



A y = -3

B x = 0

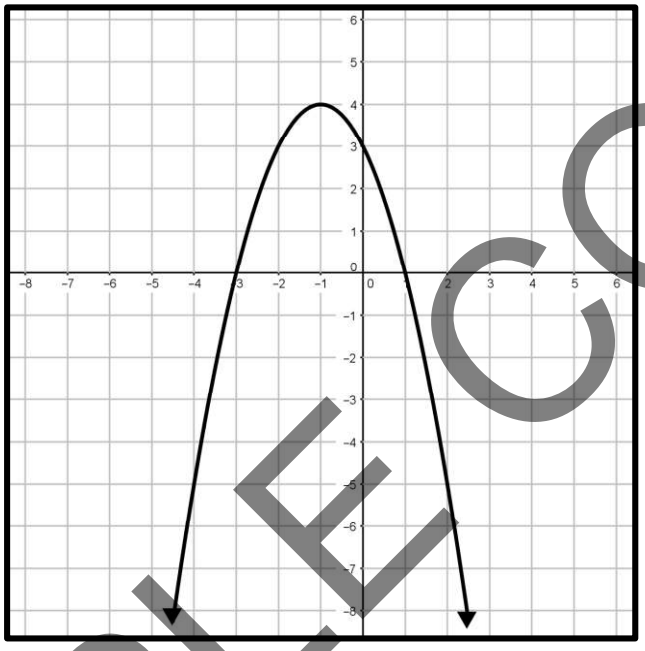
C y = 0

D x = -3

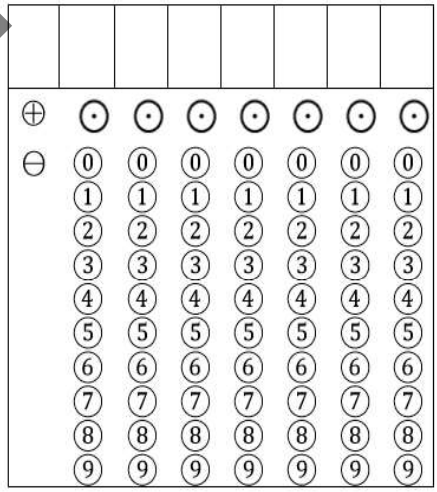
2 (A.7A)

A graph of $f(x) = -x^2 - 2x + 3$ is shown on the grid. The coordinates of the x-intercepts, the y-intercept, and the vertex are integers.

What is the maximum value of f?

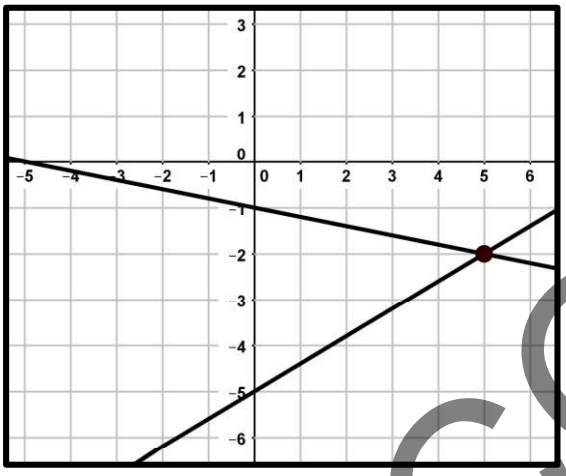


Record your answer and fill in the bubbles below.



3 (A.2I)

Write the system of equations represented by the graph below.



A $y = -\frac{3}{5}x - 5$
$y = -\frac{1}{5}x - 1$

B $y = \frac{3}{5}x - 5$
$y = \frac{1}{5}x - 1$

C $y = \frac{3}{5}x - 5$
$y = -\frac{1}{5}x - 1$

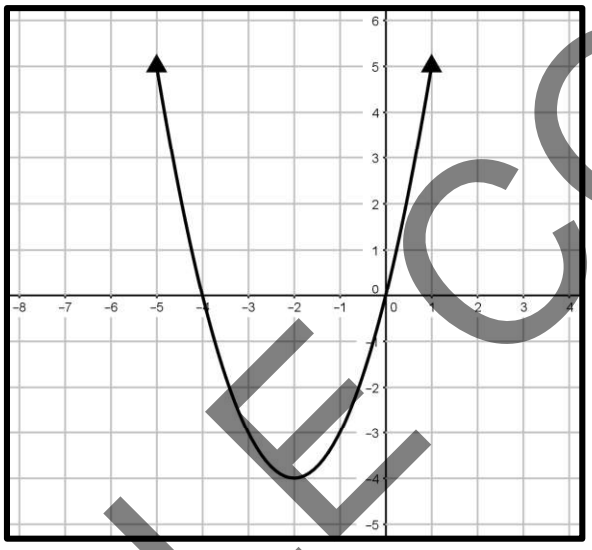
D $y = -\frac{3}{5}x - 5$
$y = -5x - 1$

Spiral 58

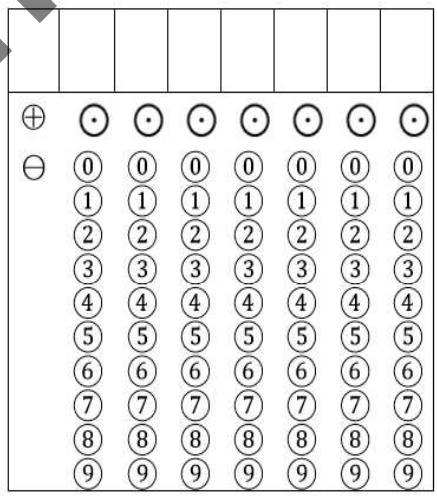
1 (A.7A)

A graph of $f(x) = x^2 + 4x$ is shown on the grid. The coordinates of the x-intercepts, the y-intercept, and the vertex are integers.

What is the minimum value of f?



Record your answer and fill in the bubbles below.



2 (A.7C)

Quadratic functions f and g are graphed on the same coordinate grid. The vertex of the graph of f is 5 units above the vertex of the graph of g. Which pair of functions could have been used to create the graphs of f and g?

A $f(x) = x^2 + 4$ and $g(x) = x^2$

B $f(x) = 2x^2$ and $g(x) = x^2$

C $f(x) = \frac{1}{2}x^2$ and $g(x) = x^2$

D $f(x) = x^2 - 4$ and $g(x) = x^2$

3 (A.7C)

Quadratic functions f and g are graphed on the same coordinate grid. The vertex of the graph of f is 5 units below the vertex of the graph of g. Which pair of functions could have been used to create the graphs of f and g?

F $f(x) = 2x^2$ and $g(x) = x^2$

G $f(x) = x^2 - 5$ and $g(x) = x^2$

H $f(x) = \frac{1}{3}x^2$ and $g(x) = x^2$

J $f(x) = x^2 + 5$ and $g(x) = x^2$

Spiral 59

1 (A.7C)

Quadratic functions f and g are graphed on the same coordinate grid. The vertex of the graph of f is wider than the graph of g. Which pair of functions could have been used to create the graphs of f and g?

A $f(x) = 3x^2$ and $g(x) = x^2$

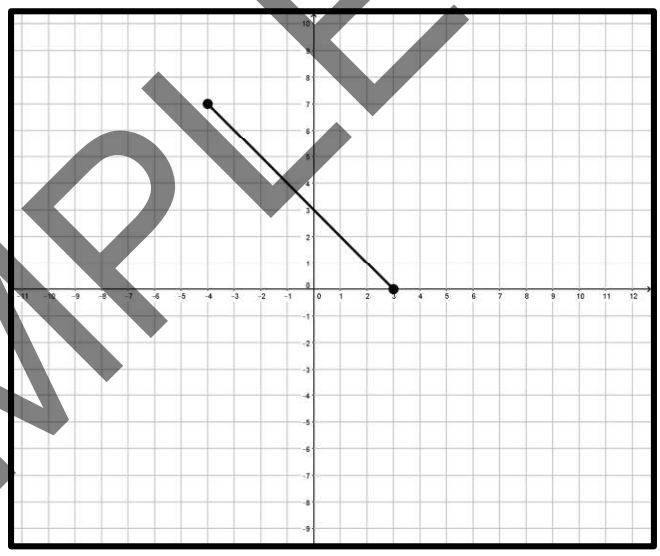
B $f(x) = x^2 - 3$ and $g(x) = x^2$

C $f(x) = \frac{1}{4}x^2$ and $g(x) = x^2$

D $f(x) = x^2 + 5$ and $g(x) = x^2$

2 (A.2A)

What is the domain of the linear function shown in the graph?



F $-4 \le x \le 3$

G $0 \le x \le 7$

H $0 \le y \le 7$

J $-4 \le y \le 3$

3 (A.7C)

Quadratic functions f and g are graphed on the same coordinate grid. The vertex of the graph of f is wider than the graph of g. Which pair of functions could have been used to create the graphs of f and g?

A $f(x) = x^2 + 8$ and $g(x) = x^2$

B $f(x) = x^2 - 2$ and $g(x) = x^2$

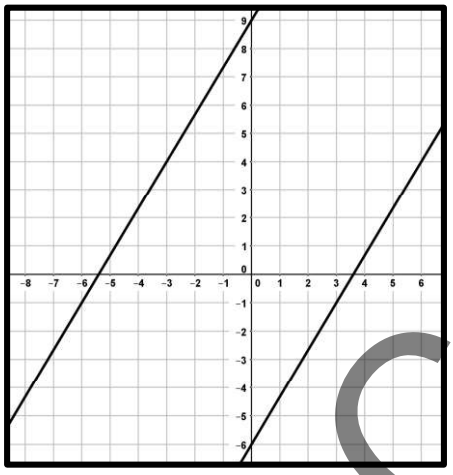
C $f(x) = \frac{1}{3}x^2$ and $g(x) = x^2$

D $f(x) = 4x^2$ and $g(x) = x^2$

Spiral 60

1 (A.2I)

Write the system of equations represented by the graph below.



F $y = \frac{5}{3}x - 6$
$y = \frac{5}{3}x + 9$

G $y = \frac{5}{3}x + 6$
$y = \frac{5}{3}x - 9$

H no system shown

J $y = \frac{5}{3}x - 6$
$y = -\frac{3}{5}x + 9$

2 (A.10E)

Which expression is a factor of $x^2 + 13x + 40$?

A (x – 8)

B (x + 5)

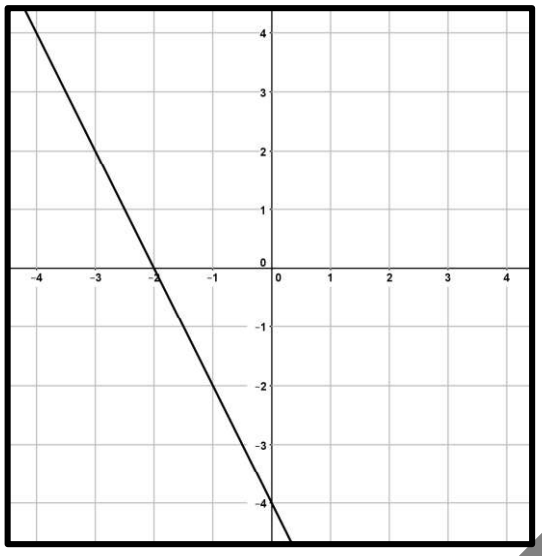
C (x – 5)

D (8 – x)

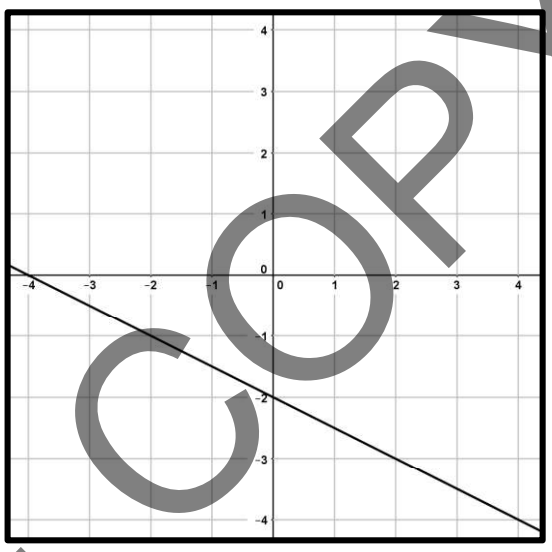
3 (A.3C)

Which graph shows a line with a slope of -2?

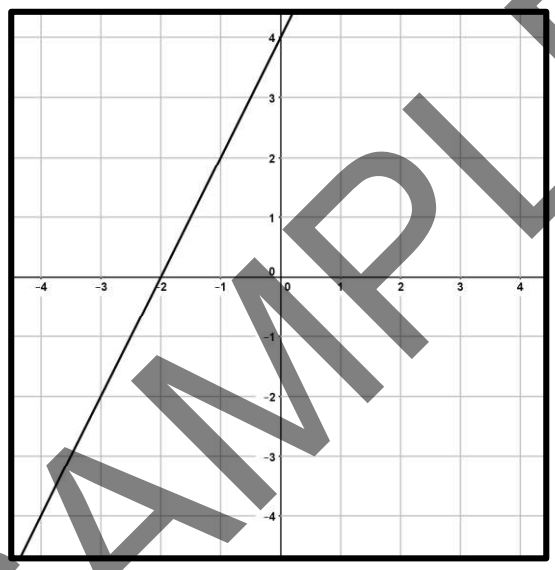
F



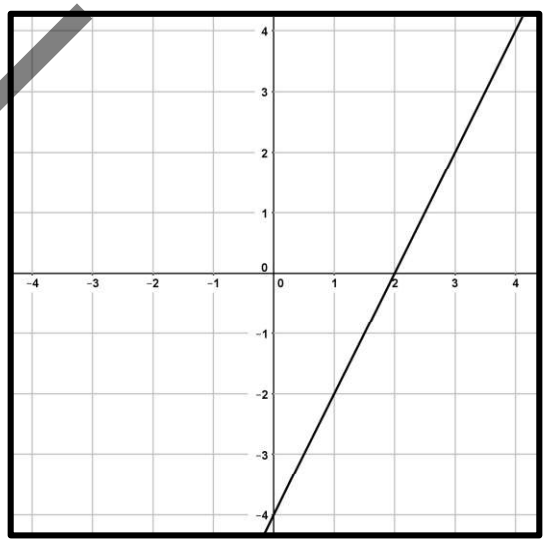
G



H



J

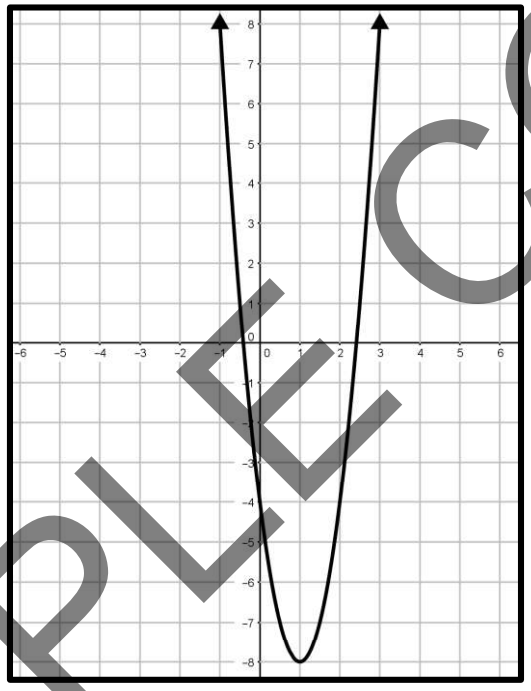


Spiral 61

1 (A.7A)

A graph of $f(x) = 4x^2 - 8x - 4$ is shown on the grid.

What is the axis of symmetry of f ?



A -4

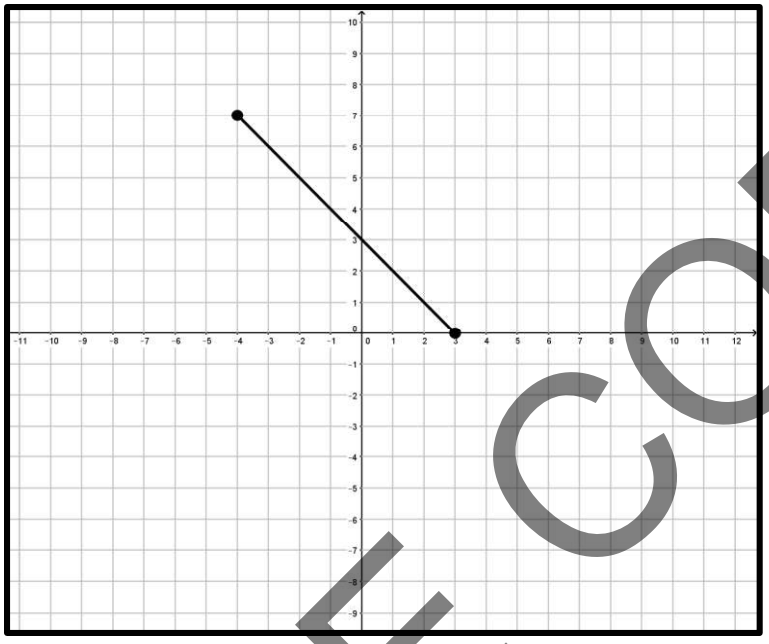
B -0.41 and 2.41

C 1

D -8

2 (A.2A)

What is the range of the linear function shown in the graph?



F $-4 \le x \le 3$

G $0 \le x \le 7$

H $0 \le y \le 7$

J $-4 \le y \le 3$

3 (A.7C)

Quadratic functions f and g are graphed on the same coordinate grid. The graph of f is narrower than the graph of g. Which pair of functions could have been used to create the graphs of f and g?

A $f(x) = x^2 + 5$ and $g(x) = x^2$

B $f(x) = x^2 - 5$ and $g(x) = x^2$

C $f(x) = \frac{1}{2}x^2$ and $g(x) = x^2$

D $f(x) = 2x^2$ and $g(x) = x^2$

Spiral 62

1 (A.5B)

Which inequality describes all the solutions to $-31.2 > 2.4(-2.9 + x)$?

F $x \leq -2.3$

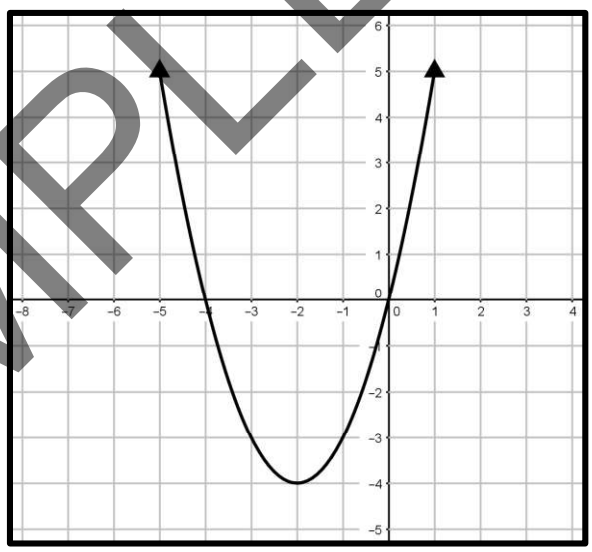
G $x \geq -8.7$

H $x > 12.4$

J $x < -10.1$

2 (A.7A)

A graph of $f(x) = x^2 + 4x$ is shown on the grid. Which of the following is a root of this function?



A 1

B -6

C -2

D -4

3 (A.8A)

What are the solutions to $x^2 + 9x = -18$?

F $x = -6$ and $x = -3$

G $x = 5$ and $x = 0$

H $x = -\frac{4}{5}$ and $x = 0$

J $x = -10 + \sqrt{149}$ and $x = -10 - \sqrt{149}$

SpiralEd Solutions

Spiral 63

1 (A.3A)

What is the slope of the line represented by the table below?

x	y
-3	10.25
1	7.25
5	4.25
7	2.75

A -3

B -2

C –0.25

D $-\frac{3}{4}$

2 (A.5C)

What is the solution to this system of equations?

$$x + y = -4$$
$$5x - y = -2$$

F (9,-4)

G (-1, -3)

H (3, 1)

J (8, -10)

3 (A.7C)

Quadratic functions f and g are graphed on the same coordinate grid. The vertex of the graph of f is 8 units above the vertex of the graph of g. Which pair of functions could have been used to create the graphs of f and g.

A $f(x) = x^2 + 8$ and $g(x) = x^2$

B $f(x) = x^2 - 2$ and $g(x) = x^2$

C $f(x) = \frac{1}{3}x^2$ and $g(x) = x^2$

D $f(x) = 4x^2$ and $g(x) = x^2$

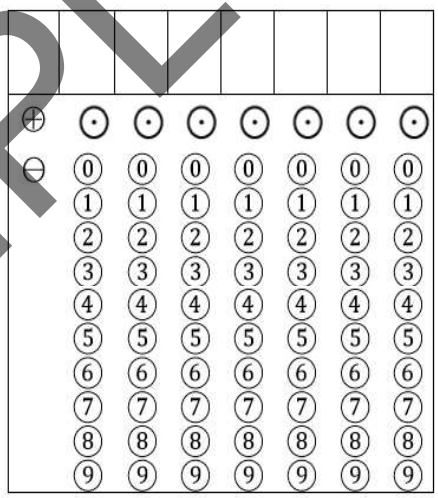
Spiral 64

1 (A.3B)

The table below shows the relationship between the number of calories burned and the number of minutes spent playing tennis.

Minutes	Calories Burned
4	3.84
6	5.76
12	11.52
25	24

What is the rate of change for the data shown in the table? Record your answer and fill in the bubbles below.



2 (A.7C)

Quadratic functions f and g are graphed on the same coordinate grid. The graph of f is reflected over the x-axis from the graph of g. Which pair of functions could have been used to create the graphs of f and g?

A $f(x) = x^2 + 8$ and $g(x) = x^2$

B $f(x) = x^2 - 2$ and $g(x) = x^2$

C $f(x) = \frac{1}{3}x^2$ and $g(x) = x^2$

D $f(x) = -x^2$ and $g(x) = x^2$

3 (A.8A)

What are the solutions to $x^2 + 20x - 39 = 10$?

F $x = -6$ and $x = -3$

G $x = 5$ and $x = 0$

H $x = -\frac{4}{5}$ and $x = 0$

J $x = -10 + \sqrt{149}$ and $x = -10 - \sqrt{149}$

Spiral 65

1 (A.8A)

What are the solutions to $x^2 - 5x = 0$?

A $x = -6$ and $x = -3$

B $x = 5$ and $x = 0$

C $x = -\frac{4}{5}$ and $x = 0$

D $x = -10 + \sqrt{149}$ and $x = -10 - \sqrt{149}$

2 (A.8A)

What are the solutions to $x(5x + 4) = 0$?

F $x = -6$ and $x = -3$

G $x = 5$ and $x = 0$

H $x = -\frac{4}{5}$ and $x = 0$

J $x = -10 + \sqrt{149}$ and $x = -10 - \sqrt{149}$

3 (A.10E)

Which expression is equivalent to $7x^2 - 2x - 5$?

A $(7x - 5)((x + 1)$

B $(7x - 5)(x - 1)$

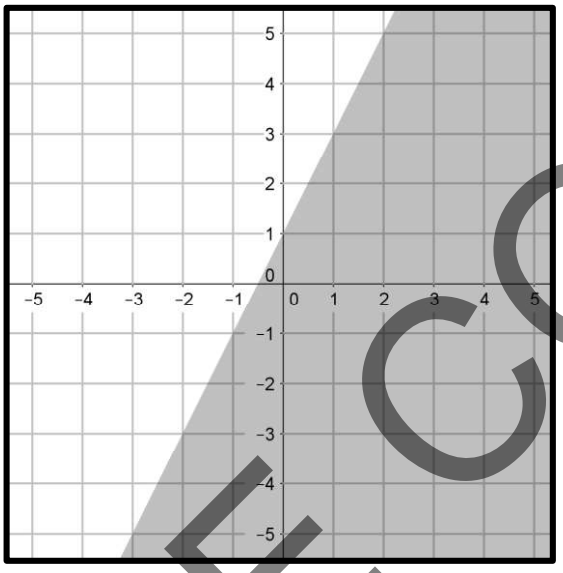
C $(7x + 5)(x - 1)$

D $(7x - 1)(x + 5)$

Spiral 66

1 (A.3D)

Which inequality is represented in the graph below?



F $y \leq 2x - 1$

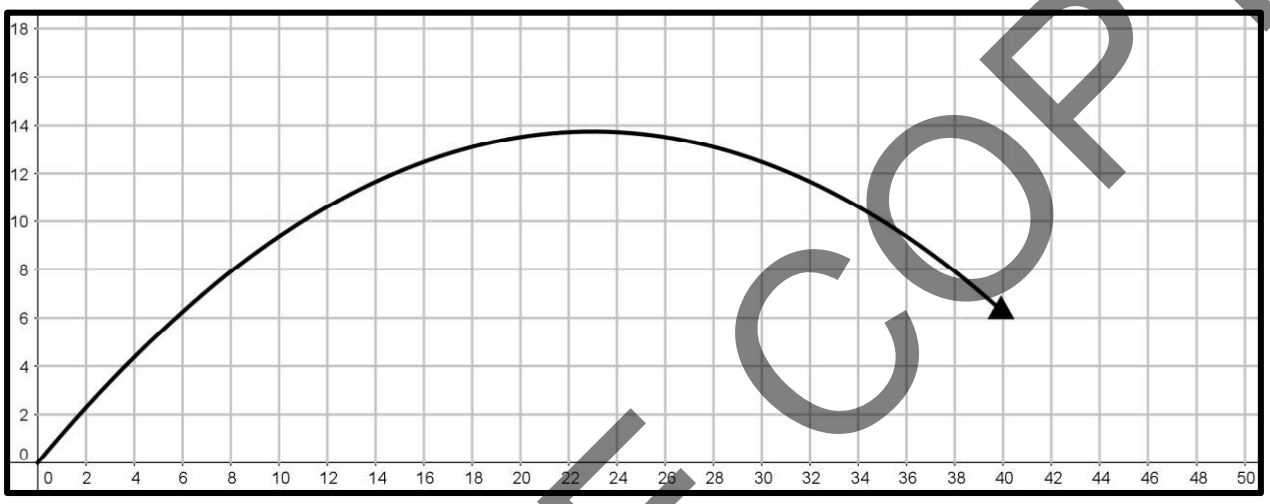
G $y < 2x + 1$

H $y > 2x - 1$

J $y \geq 2x + 1$

2 (A.8B)

The path of a football kicked downfield can be represented by the quadratic function shown in the graph below (where x is the horizontal position in yards and y is the height in yards). Approximate how far downfield the ball will hit the ground.



A 50 yards

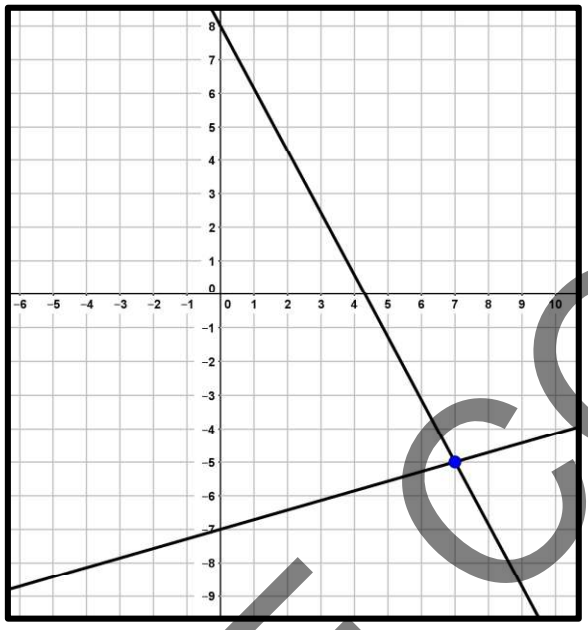
B 14 yards

C 46 yards

D 42 yards

3 (A.2I)

Write the system of equations represented by the graph below.



F $\begin{aligned} 13x + 7y &= 49 \\ 2x - 7y &= 56 \end{aligned}$

G $\begin{aligned} 9x + 7y &= 35 \\ 2x - 7y &= 14 \end{aligned}$

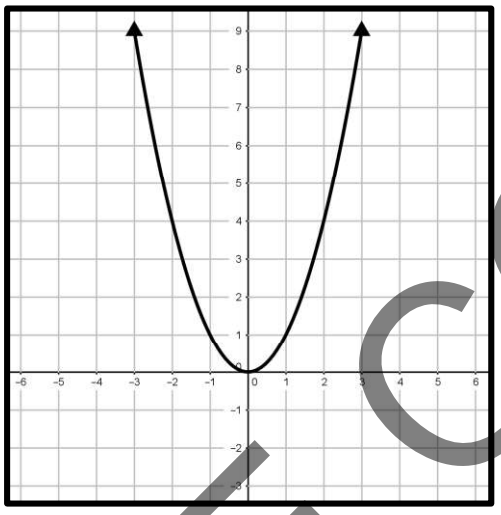
H $\begin{aligned} 9x - 7y &= 49 \\ 2x + 7y &= 63 \end{aligned}$

J $\begin{aligned} 13x + 7y &= 56 \\ 2x - 7y &= 49 \end{aligned}$

Spiral 67

1 (A.7C)

The graph of $f(x) = x^2$ is shown on the grid.



Which statement about the relationship between the graph of f and the graph $g(x) = 4x^2$ of is true?

A The graph of g is narrower than the graph of f.

B The graph of g is wider than the graph of f.

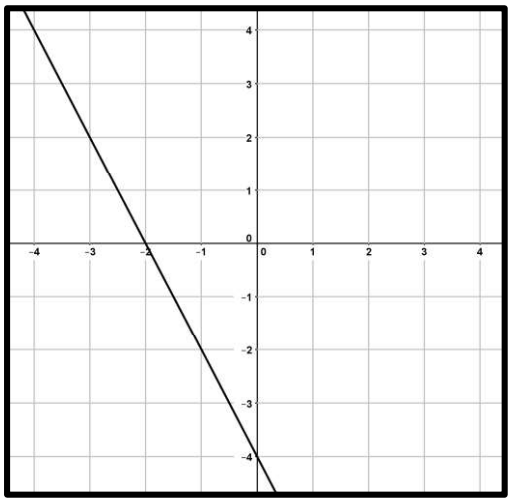
C The graph of g is 3 units below the graph of f.

D The graph of g is 3 units above the graph of f.

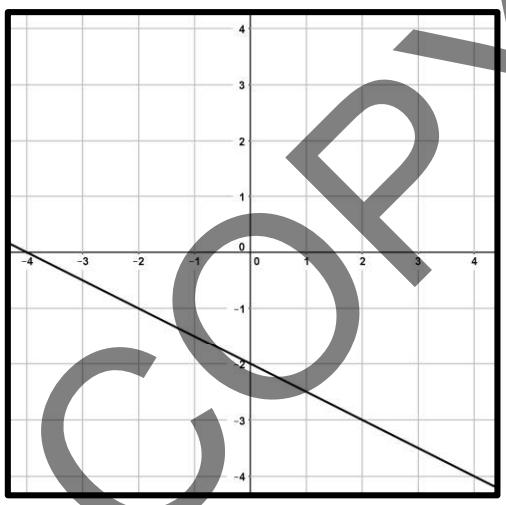
2 (A.3C)

Which graph shows a line with a slope of $-\frac{1}{2}$?

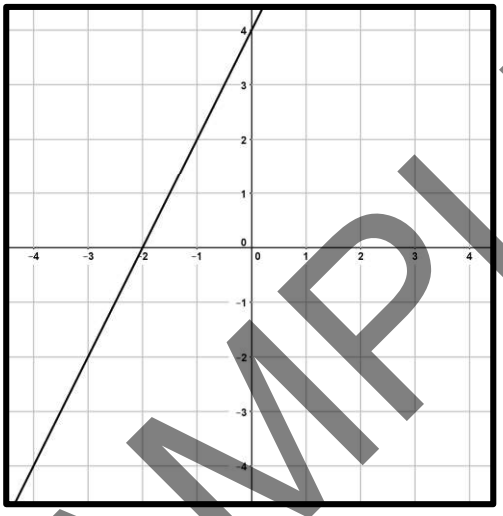
F



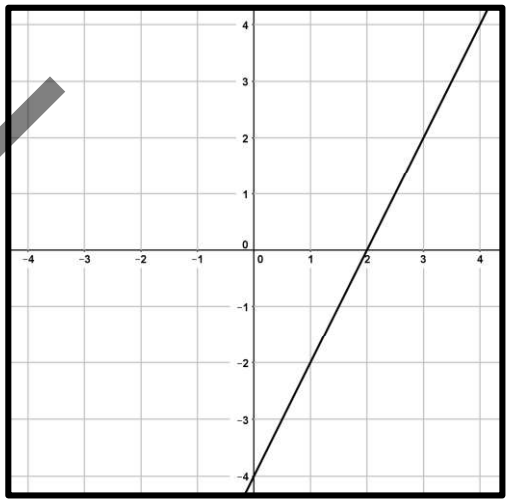
G



H

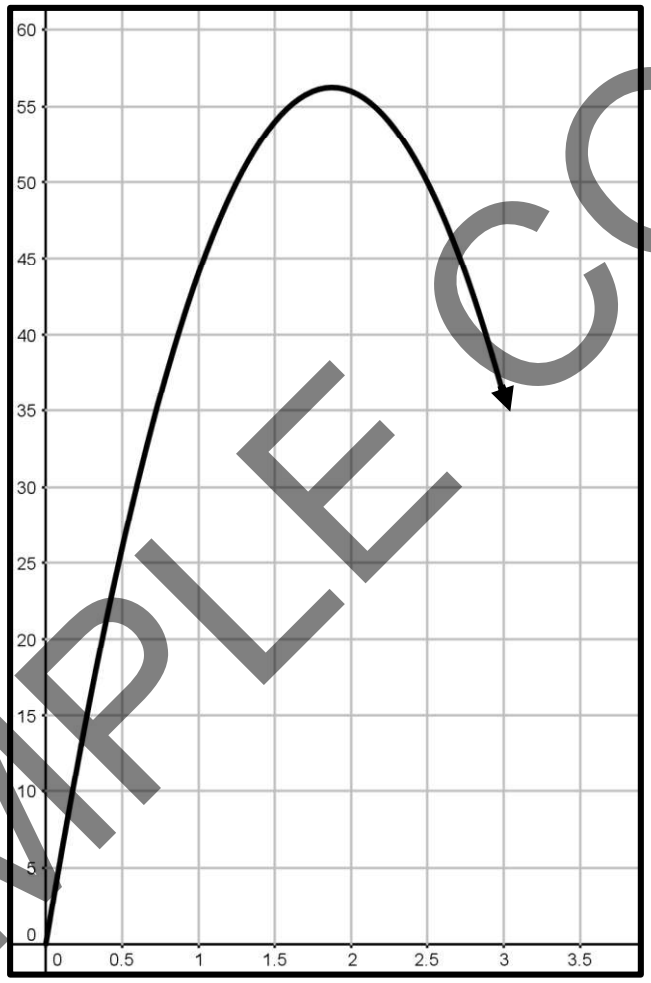


J



3 (A.8B)

A ball is thrown from ground level upward at an initial velocity of 60 ft/sec. The ball's path can be represented by the quadratic function shown in the graph below, with the y-axis showing the ball's altitude in feet, and the x-axis showing the time in seconds. What is the ball's approximate maximum altitude?



A 56.5 feet

B 2 feet

C 3.5 feet

D 58 feet

Spiral 68

1 (A.7B)

Which statement about $g(x) = x^2 - 6x - 40$ is true?

F The zeros are -4 and 10 because $g(x) = (x + 4)(x - 10)$.

G The zeros are 4 and -10 because $g(x) = (x - 4)(x + 10)$.

H The zeros are 4 and 10 because $g(x) = (x - 4)(x - 10)$.

J The zeros are -4 and -10 because $g(x) = (x + 4)(x + 10)$.

2 (A.10E)

Which expression is a factor of $x^2 - 12x + 32$?

A (x + 16)

B (x – 2)

C (x + 4)

D (x – 8)

3 (A.7B)

Which statement about $f(x) = x^2 + 12x + 32$ is true?

F The zeros are -4 and 8 because $f(x) = (x + 4)(x - 8)$.

G The zeros are -4 and -8 because $f(x) = (x + 4)(x + 8)$.

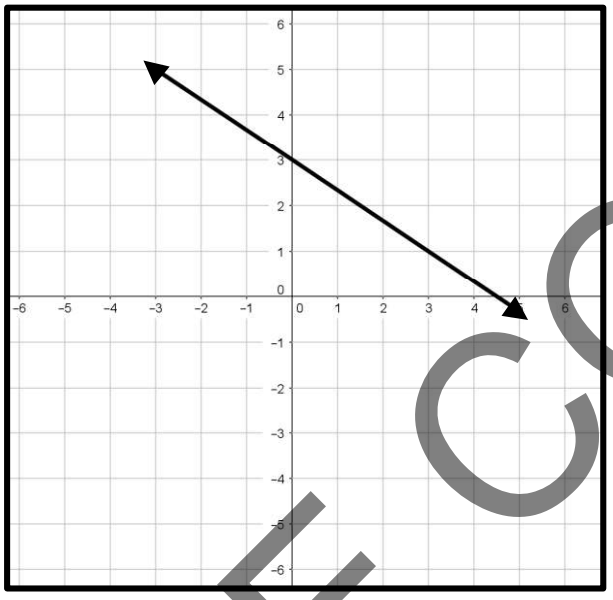
H The zeros are 4 and 8 because $f(x) = (x - 4)(x - 8)$.

J The zeros are 4 and -8 because $f(x) = (x - 4)(x + 8)$.

Spiral 69

1 (A.2C)

What function is represented by the graph?



A $f(x) = -\frac{2}{3}x - 3$

B $f(x) = \frac{2}{3}x - 3$

C $f(x) = \frac{2}{3}x + 3$

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

2 (A.8A)

What are the solutions to $x^2 - 2x = 15$?

F $x = -3$ and $x = 5$

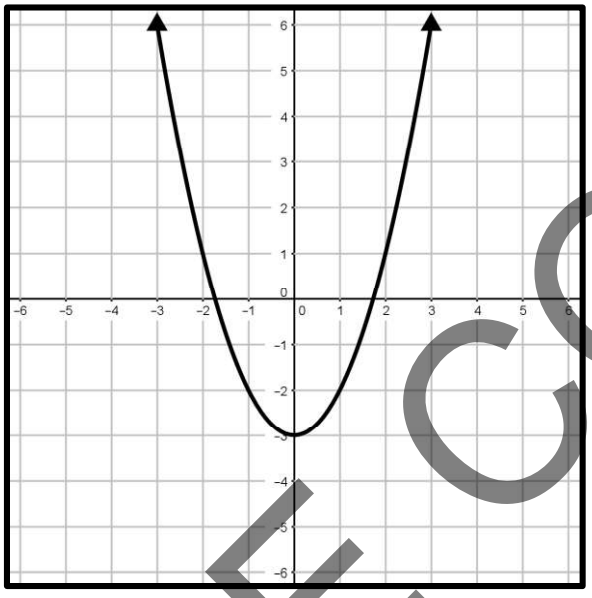
G $x = -7$ and $x = 8$

H $x = -\frac{2}{5}$ and $x = 0$

J $x = \frac{1+\sqrt{97}}{4}$ and $x = \frac{1-\sqrt{97}}{4}$

3 (A.7A)

A graph of $y = x^2 - 3$ is shown on the grid. What is the vertex of this function?



A (0, -3)

B (-2, 1)

C (2, 1)

D (-3, 0)

Spiral 70

1 (A.2G)

Which of the following lines could be perpendicular to the y-axis?

F. A line passing through (-3, 2) with a slope of 1.

G A line passing through (2, -2) with a slope of 0.

H A line passing through (-4, -5) with an undefined slope.

J A line passing through (3, 4) with a slope of -1.

2 (A.8A)

What are the solutions to $x^2 - x - 56 = 0$?

A $x = -3$ and $x = 5$

B $x = -7$ and $x = 8$

C $x = -\frac{2}{5}$ and $x = 0$

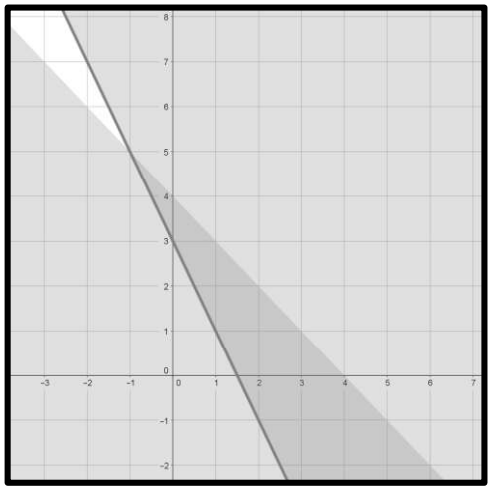
D $x = \frac{1+\sqrt{97}}{4}$ and $x = \frac{1-\sqrt{97}}{4}$

3 (A.3H)

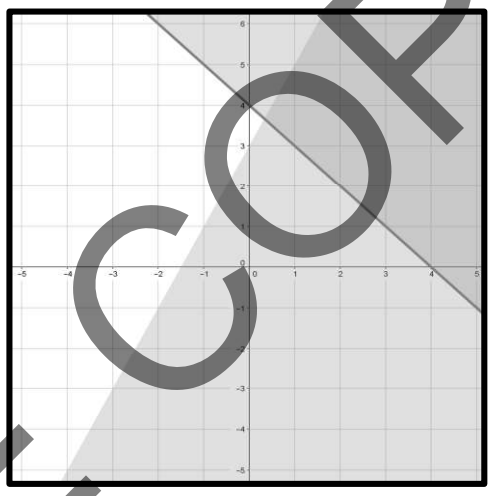
Which graph represents the system of inequalities?

$$2x + y \geq 3$$
$$x + y < 4$$

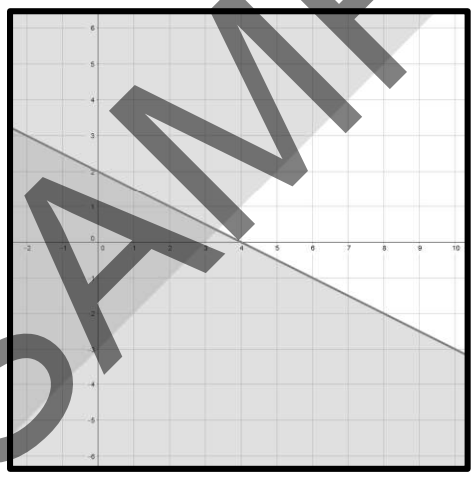
F



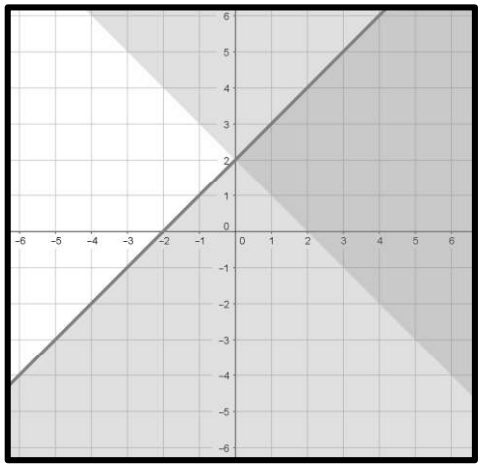
G



H



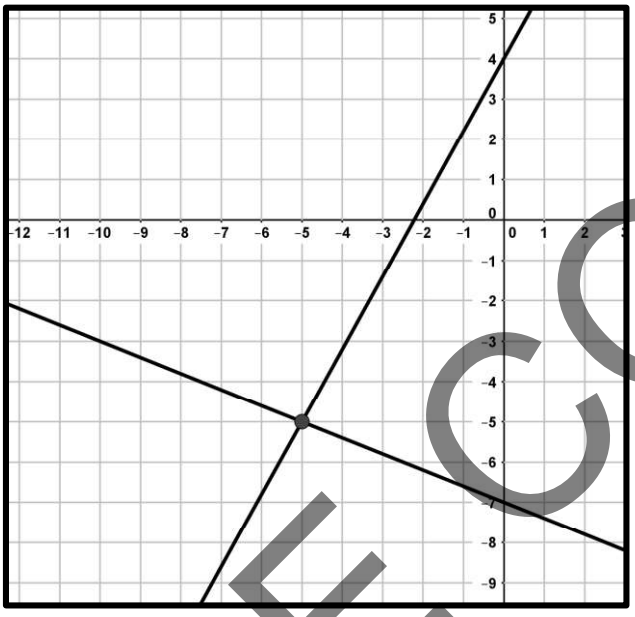
J



Spiral 71

1 (A.2I)

Write the system of equations represented by the graph below.



A $\begin{aligned} 9x + 5y &= -20 \\ 2x - 5y &= -35 \end{aligned}$

B $\begin{aligned} 9x - 5y &= -20 \\ 2x + 5y &= -35 \end{aligned}$

C $\begin{aligned} 5x - 9y &= -20 \\ 5x + 2y &= -35 \end{aligned}$

D $\begin{aligned} 5x + 9y &= -20 \\ 5x - 2y &= -35 \end{aligned}$

2 (A.12B)

If the domain of the function, $f(x) = -2(x + 7) - 2$, is $x < -1$, which term is not included in the range?

F -8

G 8

H -16

J 0

3 (A.5C)

What is the solution to this system of equations?

$$-6y + 5x = -48$$

$$-y = -1 + \frac{1}{3}x$$

A (3, -9)

B (-12, 7)

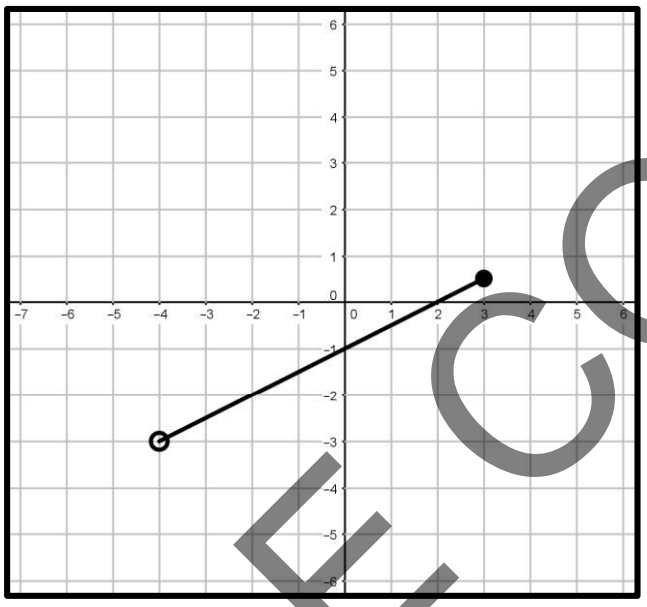
C (-6, 3)

D (5, 8)

Spiral 72

1 (A.2A)

What is the domain of the linear function shown in the graph?



F $-4 < x \leq 3$

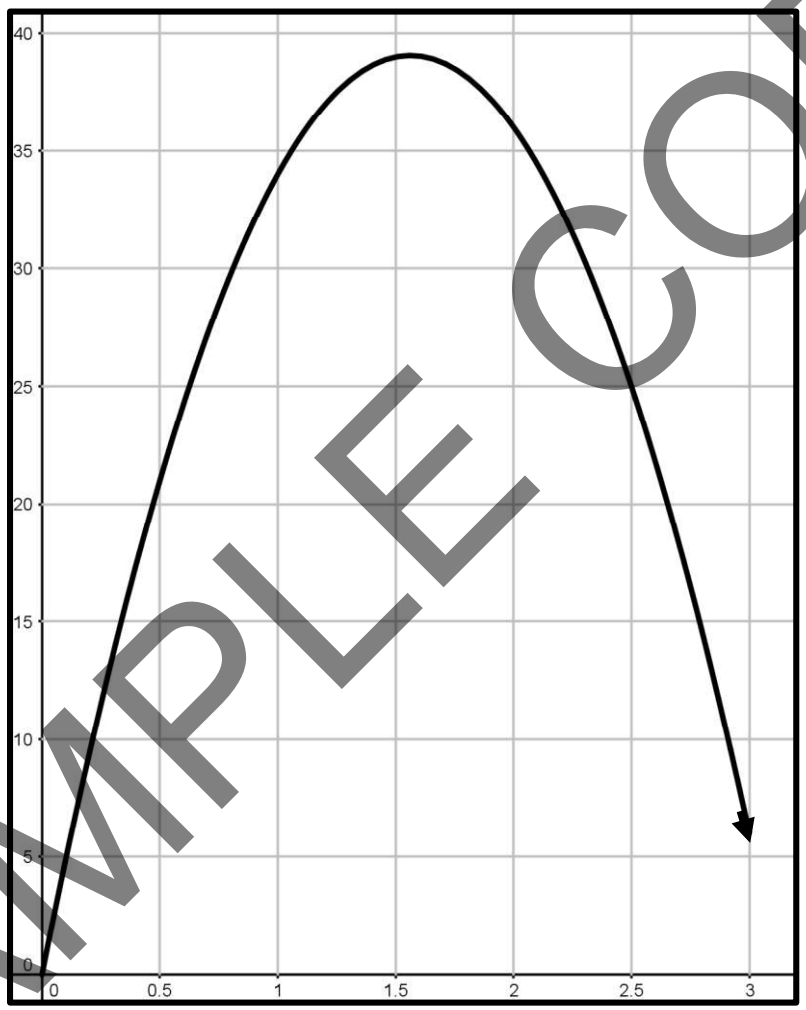
G $-3 < y \leq 0.5$

H $-4 \leq y \leq 3$

J $-3 < x \leq 0.5$

2 (A.8B)

A rock is thrown upward from ground level with an initial velocity of 50 ft./sec. The rock's path is represented by the quadratic function shown in the graph below, with the y-axis showing the rock's altitude in feet, and the x-axis showing the time in seconds. Approximate when the rock will hit the ground.



A 3 seconds

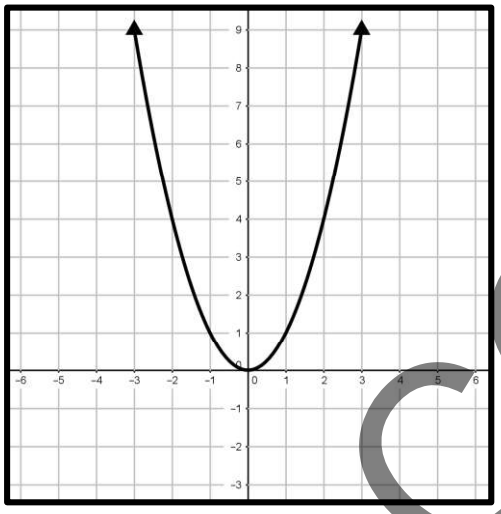
B 3.2 seconds

C 5 seconds

D 1.55 seconds

3 (A7.C)

The graph of $f(x) = x^2$ is shown on the grid.



Which statement about the relationship between the graph of f and the graph $g(x) = \frac{2}{3}x^2$ of is true?

F The graph of g is narrower than the graph of f.

G The graph of g is wider than the graph of f.

H The graph of g is 3 units below the graph of f.

J The graph of g is 3 units above the graph of f.

Spiral 73

1 (A.6B)

Write the equation for a quadratic function with a vertex at (0, 0) and passing through (-2, 8).

A $y = 2x^2$

B $y = 2x^2 + 1$

C $y = -x^2 + 1$

D $y = 3(x-2)^2$

2 (A.7B)

Which statement about $h(x) = x^2 + 16x + 60$ is true?

F The zeros are 6 and 10 because $h(x) = (x-6)(x-10)$.

G The zeros are 6 and -10 because $h(x) = (x-6)(x+10)$.

H The zeros are -6 and -10 because $h(x) = (x+6)(x+10)$.

J The zeros are -6 and 10 because $h(x) = (x+6)(x-10)$.

3 (A.7B)

Which statement about $f(x) = x^2 + 4x - 32$ is true?

A The zeros are -4 and 8 because $f(x) = (x+4)(x-8)$.

B The zeros are -4 and -8 because $f(x) = (x+4)(x+8)$.

C The zeros are 4 and 8 because $f(x) = (x-4)(x-8)$.

D The zeros are 4 and -8 because $f(x) = (x-4)(x+8)$.

Spiral 74

1 (A.8A)

What are the solutions to $x(5x+2)=0$?

F $x=-3$ and $x=5$

G $x=-7$ and $x=8$

H $x=-\frac{2}{5}$ and $x=0$

J $x=\frac{1+\sqrt{97}}{4}$ and $x=\frac{1-\sqrt{97}}{4}$

2 (A.6B)

Write the equation for a quadratic function with a vertex at (0, 1) and passing through (-1, 0).

A $y=2x^2$

B $y=2x^2+1$

C. $y=-x^2+1$

D $y=3(x-2)^2$

3 (A.6B)

Write the quadratic equation $y=3(x-2)^2$ in standard form.

F $y=x^2-4x+4$

G $y=3x^2-12x+12$

H $y=3x^2+12x-12$

J $y=9x^2-36x+36$

SpiralEd Solutions

Spiral 75

1 (A.6C)

Which of the equations below does not describe a function with solutions of 4 and -2?

A $y = 2x^2 - 4x - 16$

B $y = x^2 - 2x - 8$

C $y = (x-1)^2 - 9$

D $y = (x-2)^2 - 4$

2 (A.6C)

Which equation has the same solutions as $y = (x-2)^2 - 4$?

F $y = x^2 - 4x$

G $y = x^2 - 12x + 36$

H $y = x^2 - 12x + 6$

J $y = x^2 - 2$

3 (A.3A)

What is the slope of the line $y - 7 = \frac{2}{3}(x+8)$?

A $\frac{2}{3}$

B -7

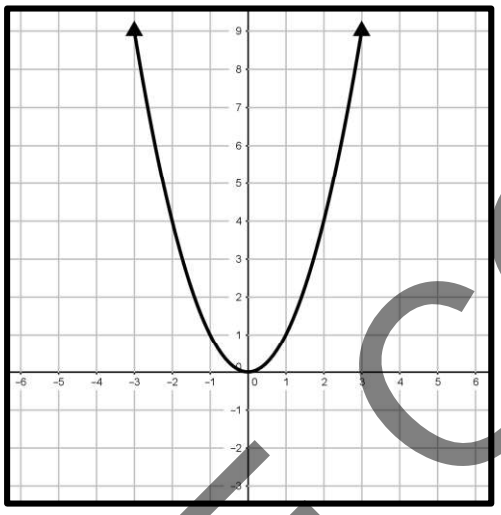
C 8

D -8

Spiral 76

1 (A.7C)

The graph of $f(x) = x^2$ is shown on the grid.



Which statement about the relationship between the graph of f and the graph $g(x) = x^2 - 3$ of is true?

F The graph of g is narrower than the graph of f.

G The graph of g is wider than the graph of f.

H The graph of g is 3 units below the graph of f.

J the graph of g is 3 units above the graph of f.

2 (A.10B)

Which expression is equivalent to $(4x - 8)(8x - 4)$?

A $32x^2 - 80x + 36$

B $32x^2 - 32x - 80$

C $32x^2 - 80x - 56$

D $32x^2 - 80x + 32$

3 (A.6A)

The table shows some ordered pairs that belong to quadratic function *g*.

What is the range of *g*?

x	y
-4	14
-2	2
0	-2
2	2
4	14

F {all real numbers}

G {all real numbers greater than or equal to -2}

H {all real numbers greater than or equal to -4}

J {all real number greater than or equal to 0}

Spiral 77

1 (A.6A)

The table shows some ordered pairs that belong to quadratic function *g*.

What is the range of *g*?

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

A {all real number greater than or equal to 0}

B {all real numbers greater than or equal to -2}

C {all real numbers greater than or equal to -4}

D {all real numbers}

2 (A.7B)

Which statement about $g(x) = -2x^2 - 5x + 42$ is true?

F The zeros are $\frac{7}{2}$ and -6 because $f(x) = -(2x - 7)(x + 6)$.

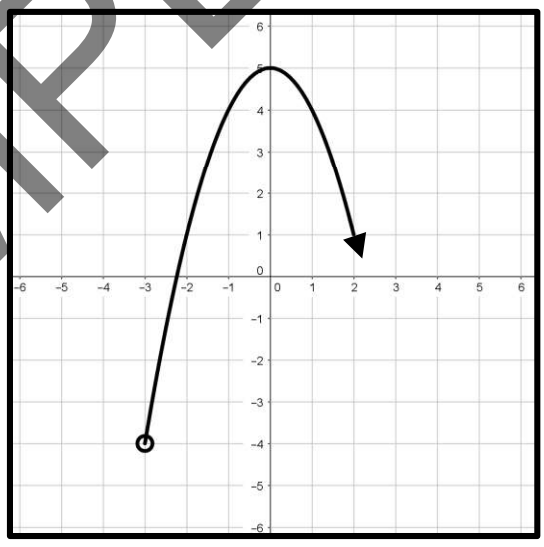
G The zeros are $\frac{7}{2}$ and 6 because $f(x) = -(2x - 7)(x - 6)$.

H The zeros are $-\frac{7}{2}$ and -6 because $f(x) = -(2x + 7)(x + 6)$.

J The zeros are $-\frac{7}{2}$ and 6 because $f(x) = -(2x + 7)(x - 6)$.

3 (A.6A)

What is the domain of the quadratic function represented by the graph below?



A $x > -3$

B $y \leq 5$

C $-3 < x \leq 2$

D $-3 \leq x < 2$

Spiral 78

1 (A.6A)

The table shows some ordered pairs that belong to quadratic function *g*.

What is the range of *g*?

x	-2	-1	0	1	2	3	4
y	4	-1	-4	-5	-4	-1	4

F All real numbers

G All real numbers greater than or equal to -2

H All real numbers greater than or equal to -5

J All real number less than or equal to -5

2 (A.2I)

Write the system of equations represented by the table below.

x	y_1	y_2
-3	5	-1
-1	1	1
1	-3	3
3	-7	5

A $\begin{aligned} y &= -2x - 1 \\ y &= x + 2 \end{aligned}$

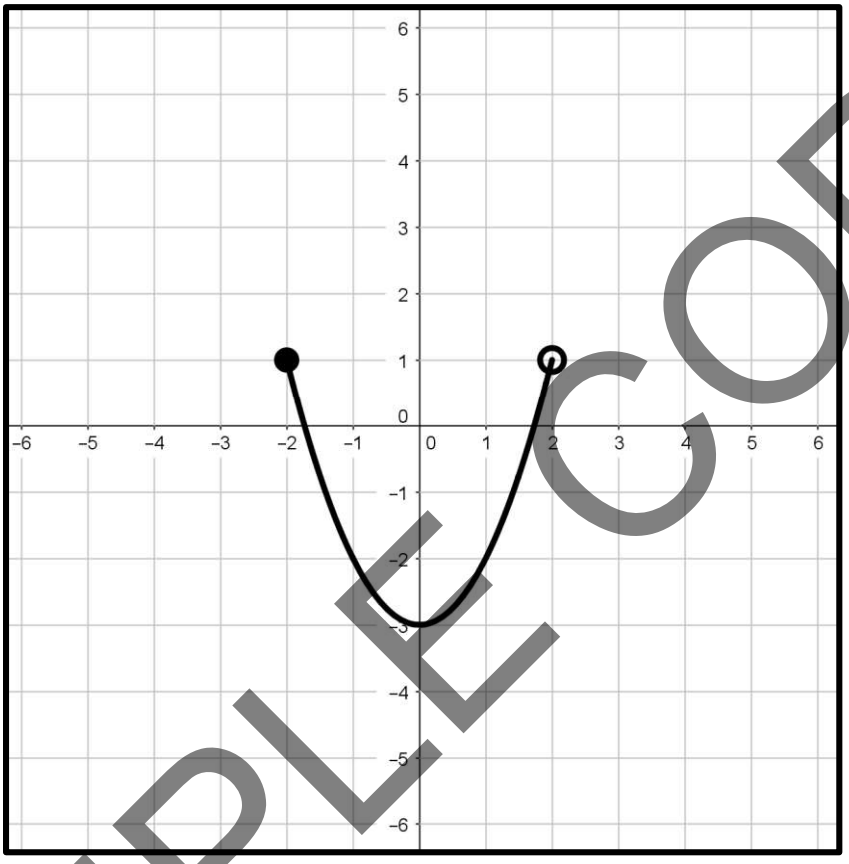
B $\begin{aligned} y &= -2x - 2 \\ y &= x + 1 \end{aligned}$

C $\begin{aligned} y &= -2x - 1 \\ y &= x - 2 \end{aligned}$

D $\begin{aligned} y &= -\frac{1}{2}x - 1 \\ y &= x + 2 \end{aligned}$

3 (A.6A)

What is the domain of the quadratic function represented by the graph below?



F $-2 \leq x < 2$

G $-2 \leq y < 2$

H $-2 \geq x < 2$

J $-3 \leq y < 2$

Spiral 79

1 (A.11A)

Simplify $\sqrt{12}$.

A $2\sqrt{3}$

B $3\sqrt{2}$

C term cannot be simplified

D $4\sqrt{3}$

2 (A.11B)

Which expression is equivalent to $y^4 \cdot 2x^2y^2 \cdot x^2y^{-3}$?

F $2x^4y^3$

G $-2x^3y^3$

H $2x^4y^{-24}$

J $2x^4y^{12}$

3 (A.11A)

Simplify $\sqrt{48}$.

A $4\sqrt{2}$

B $4\sqrt{3}$

C $2\sqrt{6}$

D $3\sqrt{4}$

SpiralEd Solutions

Spiral 80

1 (A.11B)

Which expression is equivalent to $\frac{(4xyz^2)^3}{x^4y}$?

F $\frac{12y^2z^6}{x}$

G $\frac{64y^2z^6}{x}$

H $\frac{12yz^5}{x}$

J $\frac{64yz^5}{x}$

2 (A.11B)

Which expression is equivalent to $\frac{4x^4y^3z^2}{3x^3z^3}$?

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

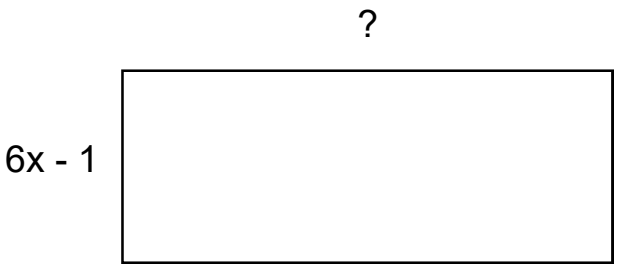
B $\frac{4x^3y^3}{z^2}$

C $\frac{4xy^3}{3z}$

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

3 (A.10C)

The diagram shows the dimensions of a rectangular wall. All dimensions are given in feet. The area of the wall is represented by the expression, $36x^2 + 24x - 5$.



What is the length of the missing side?

F $6x + 5$

G $9x - 5$

H $6x + 4$

J $5 - 6x$

SpiralEd Solutions

Spiral 81

1 (A.11A)

Simplify $\sqrt{162}$.

A $8\sqrt{2}$

B $81\sqrt{2}$

C $9\sqrt{2}$

D $2\sqrt{9}$

2 (A.11B)

Which expression is equivalent to $\frac{4x^4y^2z^{-1}}{3x^{-3}z^4}$?

F $\frac{4x^7y^3}{3z^4}$

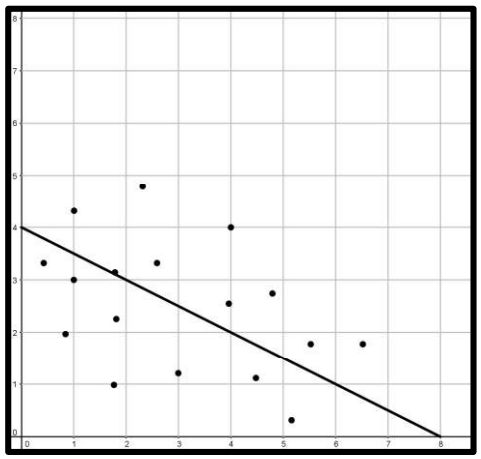
G $\frac{4x^7y^3}{3z^2}$

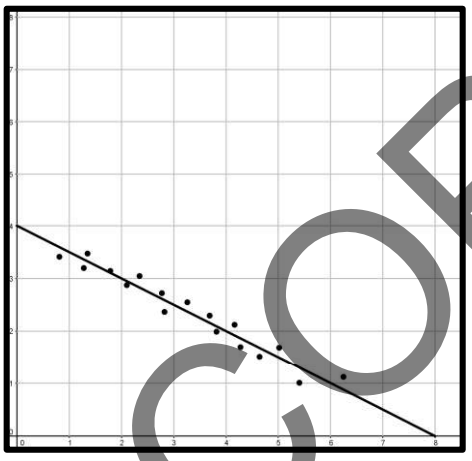
H $\frac{4xy^3}{3z}$

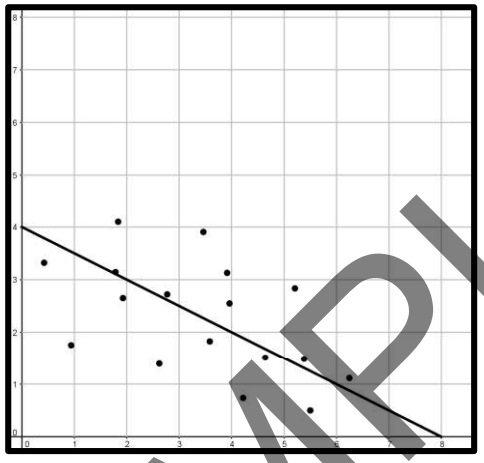
J $\frac{4x^7y^2}{3z^5}$

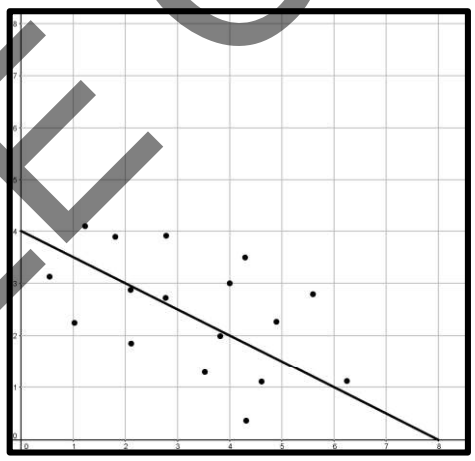
3 (A.4A)

Each graph shows a scatterplot with a line of best fit. Which graph shows the data set with a correlation coefficient closest to one?

A 

B 

C 

D 

Spiral 82

1 (A.11B)

Which expression is equivalent to $\frac{2x^{-2}y^4}{yz^2}$?

F $\frac{2y^2}{x^2z^2}$ **G** $\frac{2y^3}{x^2z^2}$

H $\frac{y^2}{2x^2z^2}$ **J** $\frac{2y^3}{2x^2z^3}$

2 (A.11A)

Simplify $\sqrt{288}$.

A $2\sqrt{12}$ **B** $8\sqrt{2}$

C $2\sqrt{8}$ **D** $12\sqrt{2}$

3 (A.11B)

Which expression is equivalent to $\frac{3x^{-3}y^4z}{4x^2y^3z^2}$?

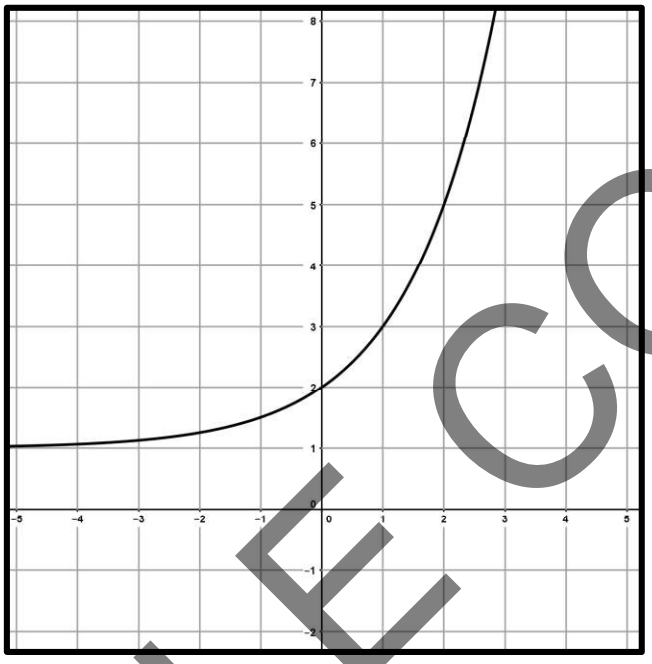
F $\frac{3xy}{4x^5z}$ **G** $\frac{3y}{4x^3z}$

H $\frac{3y}{4x^5z}$ **J** $\frac{3y}{4x^5z^2}$

Spiral 83

1 (A.9D)

The graph of an exponential function is shown on the grid.



Based on the graph, which statement about the function is true?

A The value of f(2) = 0.

B The graph crosses the x-axis at -7.

C The y-intercept is 2.

D The value of f(4) = 1.

2 (A.9B)

Compound interest on an account can be determined using the formula, $A = P(1+r)^t$, where A is the future value, P is the beginning principle, r is the constant rate of change, and t is the time in years. A banker used the formula, $A = 5000(1+0.02)^8$, regarding an account.

What is the interest rate on the account?

F 1.02%

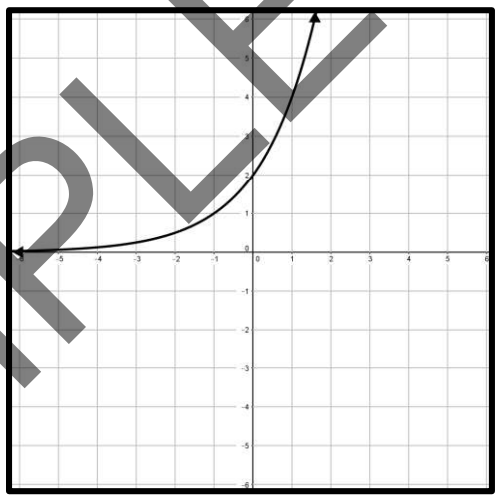
G 102%

H 2%

J 0.02%

3 (A.9D)

The graph of an exponential function is shown on the grid.



Based on the graph, which statement about the function is true?

A The value of f(2) = 0.

B The graph crosses the x-axis at -7.

C The y-intercept is -1.

D The value of f(1) = 4.

Spiral 84

1 (A.9B)

The exponential growth rate for bacteria can be determined by the formula, $A = Pk^t$, where A is the final amount, P is the beginning amount, k is the constant rate of change, and t is the time. A biologist used the formula, $500 = 20(2)^t$, regarding a strain of bacteria.

The biologist wanted to determine…

F the constant growth rate of the bacterial culture.

G the time at which the colony would reach a population of 500.

H the time at which the colony would double its initial population.

J the size of the population after 20 minutes.

2 (A.9B)

Compound interest on an account can be determined using the formula, $A = P(1+r)^t$, where A is the future value, P is the beginning principle, r is the constant rate of change, and t is the time in years. A banker used the formula, $A = 5000(1+0.02)^8$, regarding an account.

For how long was the money invested?

A 2 years

B 8 years

C 12 months

D 12 years

3 (A.9C)

The table contains some points on the graph of an exponential function.

x	0	2	4	6	8
y	2	18	162	1458	13122

Based on the table, which function represents the same relationship?

F $f(x) = 2(2)^x$

G $f(x) = 3(2)^x$

H $f(x) = 2(3)^x$

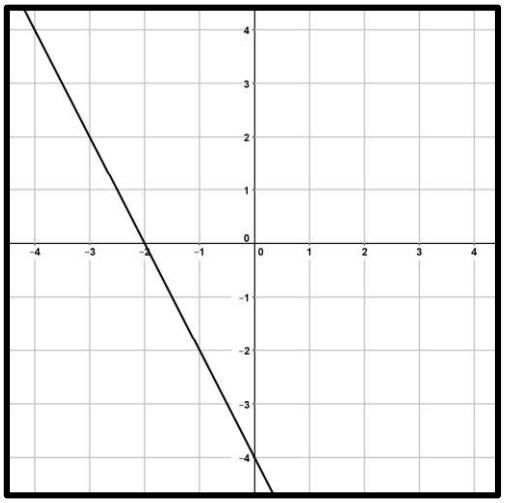
J $f(x) = 3(3)^x$

Spiral 85

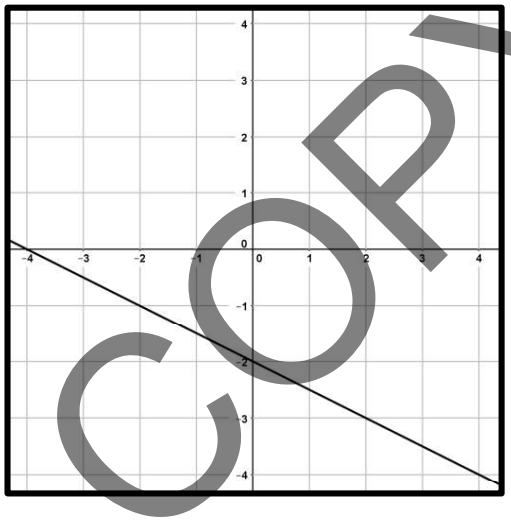
1 (A.3C)

Which graph shows a line with a y-intercept of 4?

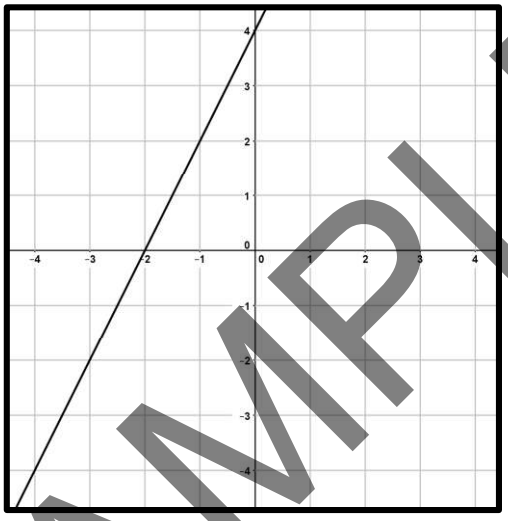
A



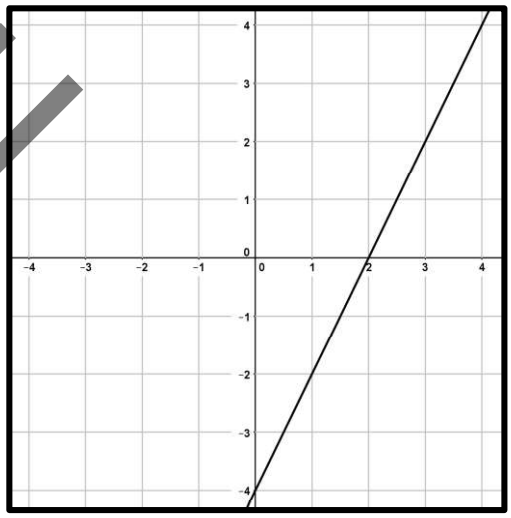
B



C



D



2 (A.3E)

A linear function is graphed on a coordinate plane, $f(x) = x$. The graph of a new line is formed by changing the slope of the original line to -1 and the y-intercept to -1. Which statement about the relationship between these two graphs is true?

F The graph of the new line moves downhill from left to right while the graph of the original line moves uphill from left to right, and the y-intercept is translated down.

G The graph of the new line moves downhill from left to right while the graph of the original line moves uphill from left to right, and the y-intercept is translated up.

H The graph of the new line moves uphill from left to right while the graph of the original line moves downhill from left to right, and the y-intercept is translated down.

J The graph of the new line moves uphill from left to right while the graph of the original line moves downhill from left to right, and the y-intercept is translated up.

3 (A.4B)

A botanist observes that when Chemical A is added to soil, the number of lima beans produced per plant doubles compared that of the control group which did not have Chemical A added to the soil. He repeats the experiment numerous times, maintaining a control group of plants to which he does not add the chemical to the soil. The control group continues to produce half the number of beans produced by the treated group. What is the best conclusion based on this information?

A There is no correlation between the addition of the chemical and increased number of beans.

B There is an association between the addition of the chemical and increased number of beans, but no causation is established.

C There is evidence indicating that addition of the chemical may cause plants to produce more beans.

D There is a correlation between the addition of the chemical and the increased number of beans, but no evidence of association or causation exist.

Spiral 86

1 (A.9C)

The table contains some points from the graph of an exponential function.

x	-2	0	2	4	6
y	0.5	2	8	32	128

Based on the table, which function represents the same relationship?

F $f(x) = 2(2)^x$

G $f(x) = 3(2)^x$

H $f(x) = 2(3)^x$

J $f(x) = 3(3)^x$

2 (A.9C)

The table contains some points from the graph of an exponential function.

x	-2	0	2	4	6
y	0.75	3	12	48	192

Based on the table, which function represents the same relationship?

A $f(x) = 2(2)^x$

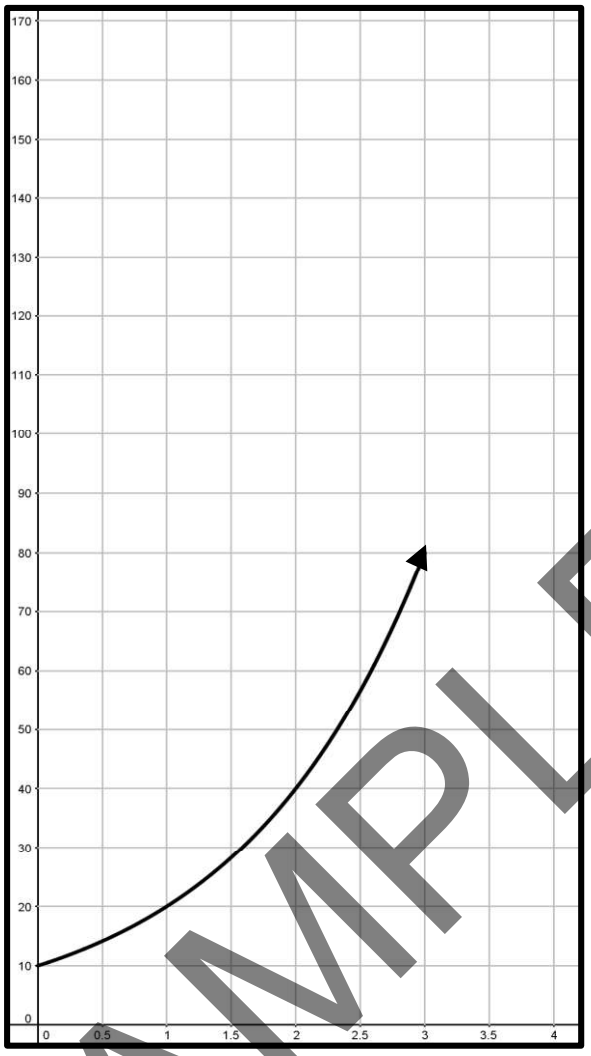
B $f(x) = 3(2)^x$

C $f(x) = 2(3)^x$

D $f(x) = 3(3)^x$

3 (A.9E)

A biologist counts the number of amoebas in a culture at one-hour intervals. The results are shown in the graph and table below.



Time	Count
0	10
1	20
2	40
3	80

Based on the data, predict the number of amoebas at 4 hours.

F 110

G 160

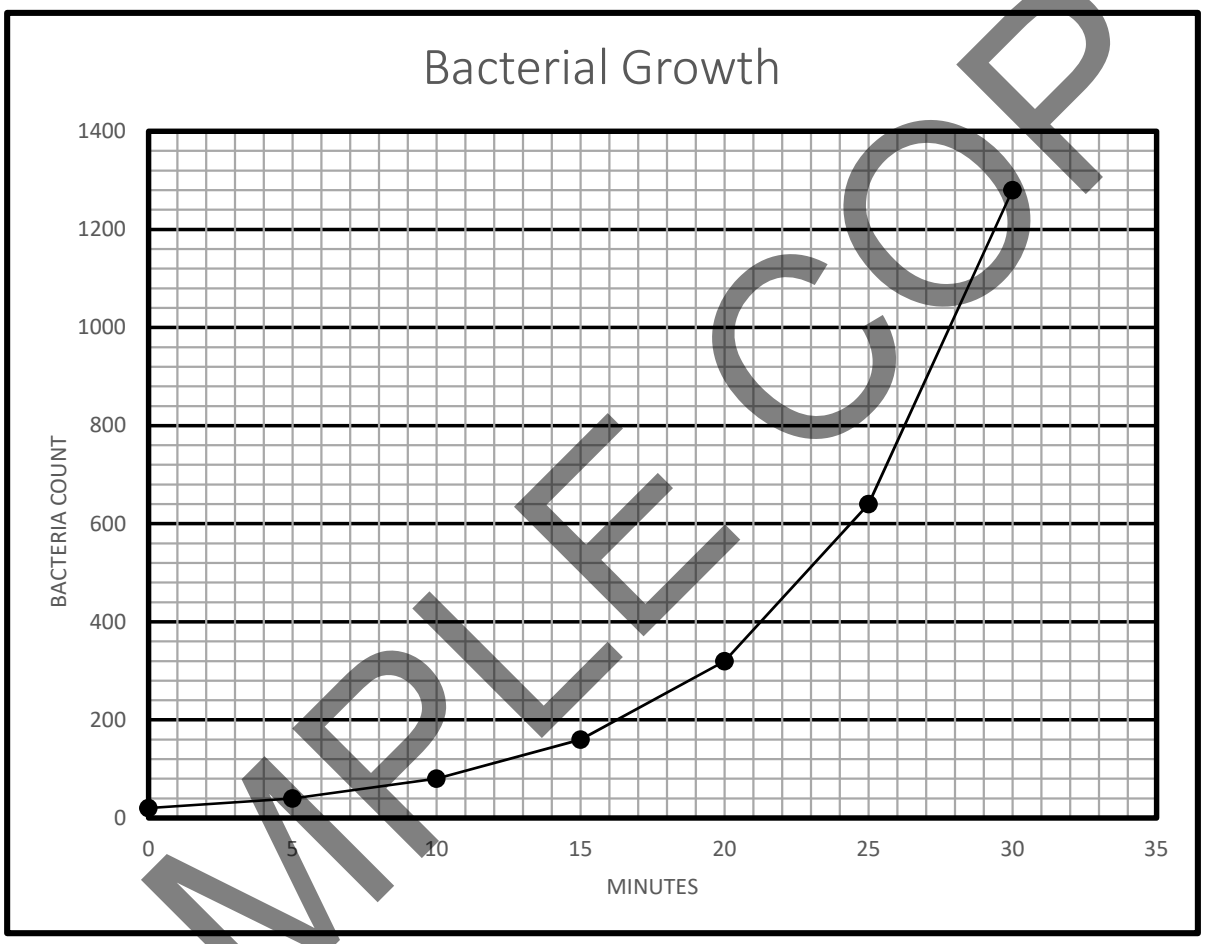
H 113

J 200

Spiral 87

1 (A.9E)

A biologist counts the number of bacteria in a culture at five-minute intervals. The results are shown in the graph below.



Predict the number of bacteria at 31 minutes.

A 1440

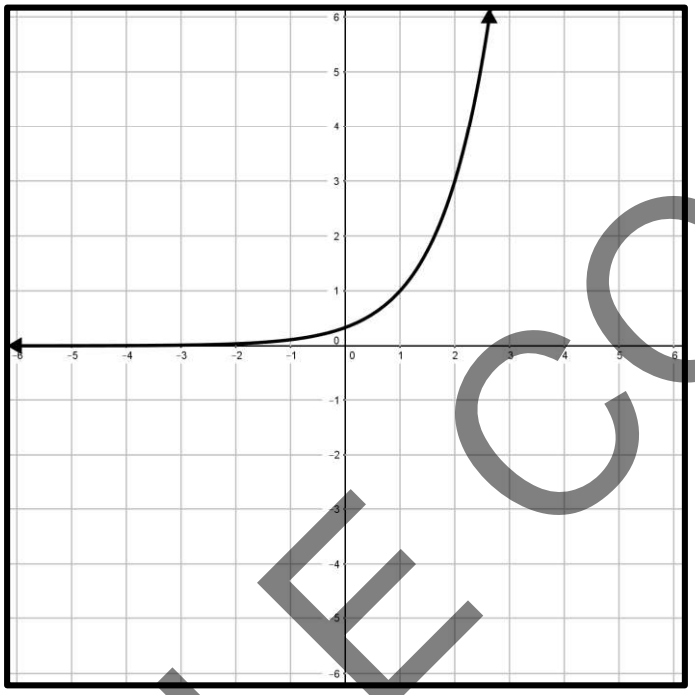
B 1600

C 2000

D 2400

2 (A.9A)

The graph of an exponential function is shown on the grid.



Based on the graph, which statement about the function is true?

F The range is the set of all real numbers less than 0.

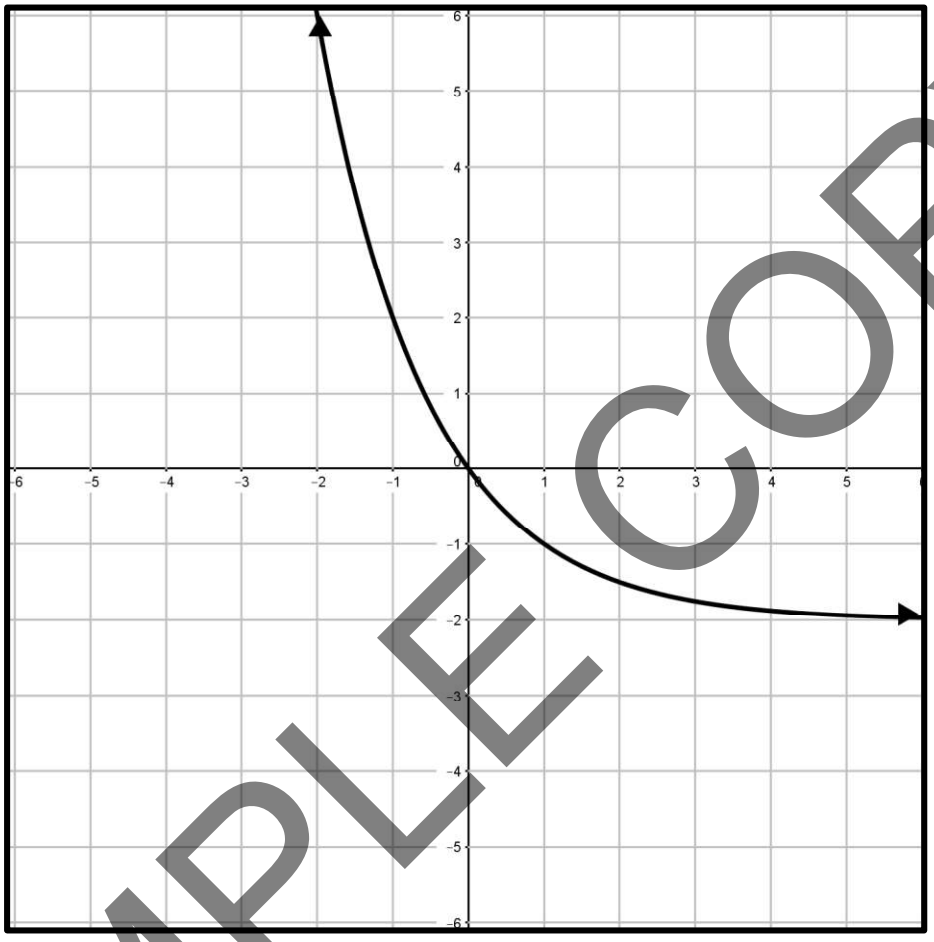
G The domain is the set of all real numbers greater than 3.

H The domain is the set of all real numbers.

J The range is the set of all real numbers less than 3.

3 (A.9A)

The graph of an exponential function is shown on the grid.



Based on the graph, which statement about the function is true?

A The range is the set of all real numbers less than -2.

B The range is the set of all real numbers greater than -2.

C The domain is the set of all real numbers greater than 0.

D The domain is the set of all real numbers less than -2.

Spiral 88

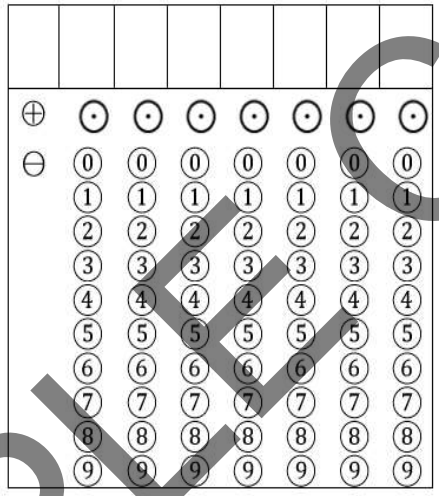
1 (A.12C)

The first five terms of a sequence are shown below.

3, 7, 11, 15, 19…

What would be the 12th term?

Record your answer and fill in the bubbles below.



2 (A12C)

The first five terms of a sequence are shown below.

2.5, 3, 3.5, 4, 4.5…

What would be the 17th term?

A 5.5

B 10.5

C 11

D 6

3 (A.12D)

Given the pattern, 4, 8, 16, 32, 64…, which expression could be used to determine the *nth* term?

F $4(n)^2$

G $4(2)^{n+2}$

H $4(2)^n$

J $4(2)^{n-1}$

Spiral 89

1 (A.12D)

Given the pattern, $-12,\ -9,\ -6,\ -3\ldots$, which expression could be used to determine the *nth* term?

A $3n-2$

B $3n-15$

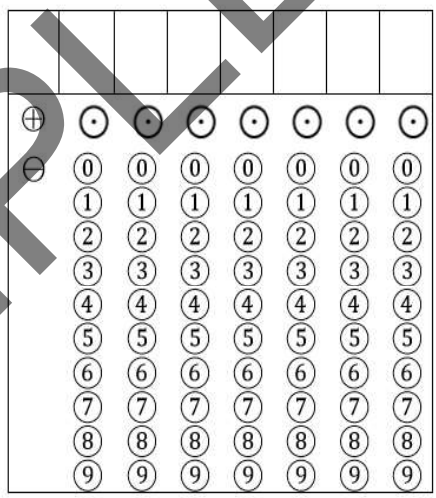
C $3n-12$

D $15n-3$

2 (A12C)

Given the pattern, $2,\ 6,\ 18,\ 54\ldots$, what is the value of the 7^{th} term?

Record your answer and fill in the bubbles below.



3 (A.12D)

A culture of bacteria doubles every hour, starting with 200 bacteria. Which expression would represent the number of bacteria, b, after n hours?

A $b = 200(2)^n$

B $b = 200(2)^{n+2}$

C $b = 200n^2$

D $b = 200n^{n-1}$

Spiral 90

1 (A.10C)

Which expression is equivalent to $(x^2 + 7x - 22) \div (x - 3)$?

F $x + 10 + \frac{8}{x-3}$

G $x - 10 + \frac{8}{x-3}$

H $x + 10 + \frac{6}{x-3}$

J $x + 4 + \frac{2}{x-3}$

2 (A.10C)

Which expression is equivalent to $(x^2 + x - 10) \div (x - 4)$?

A $x - 5 + \frac{10}{x-4}$

B $x + 5 + \frac{10}{x-4}$

C $x - 6 + \frac{7}{x-4}$

D $x + 4 + \frac{2}{x-3}$

3 (A.12C)

The sum of the interior angles of a triangle is 180°, a quadrilateral is 360°, a pentagon is 540°. If this pattern continues, what is the sum of the angles of a dodecagon (12-sided polygon)?

F 1440°

G 1200°

H 1800°

J 1500°

Spiral 91

1 (A.2G)

Which of the following lines could be perpendicular to the x-axis?

A A line passing through (-3, 2) with a slope of 1.

B A line passing through (2, -2) with an undefined slope.

C A line passing through (-4, -5) with a slope of 0.

D A line passing through (3, 4) with a slope of -1.

2 (A.2F)

Write the equation for a line passing through (-4, -8) and perpendicular to $x + y = -1$.

F $y = x + 1$

G $y = -x + 4$

H $y = x - 4$

J $y = -4x + 1$

3 (A.2H)

Which inequality includes the origin?

A $x + 2y \geq 8$

B $x + 2y \leq -8$

C $x - 2y \leq 8$

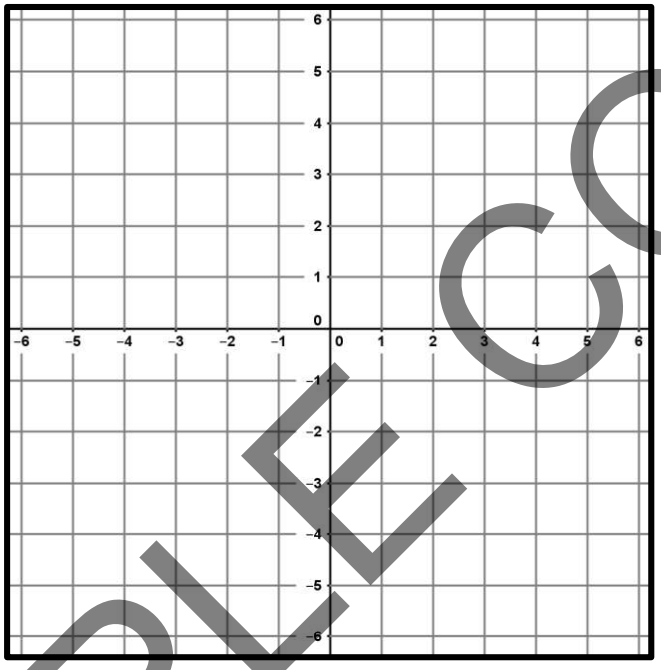
D $x - 2y \geq 8$

Spiral 92

1 (A.3F)

Graph the system of equations and determine its solution.

$$5x - 4y = -8$$
$$x + 4y = -16$$



F (3, 4)

G (3, -4)

H (-4, -3)

J no solution

2 (A.12B)

The domain of $f(x) = -2(4 - x)$ is $\{-4, -2, 0, 2\}$, what is the range?

A $\{-16, -10, -8, -4\}$

B $\{-16, -12, -6, -4\}$

C $\{-16, -12, -8, -4\}$

D $\{-16, -12, -8, -2\}$

3 (A.2A)

The range for the function, $f(x) = -2x + 3$, is $\{-7, -5, 1, 3, 9\}$. Which of the following is part of the domain?

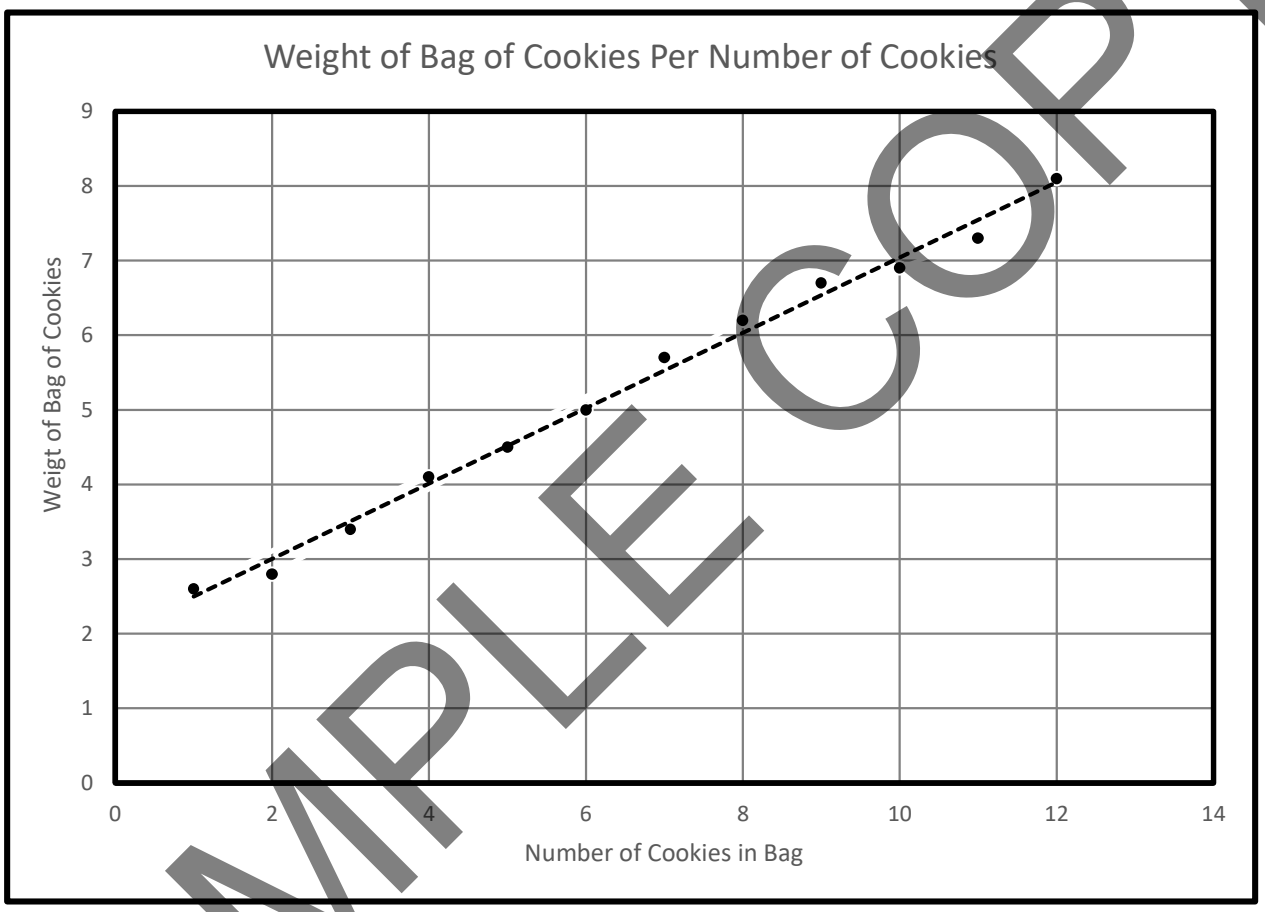
F 6 **G** -1

H 0 **J** -4

Spiral 93

1 (A.4C)

The graph shows the relationship between the total weight of a bag of cookies and the number of cookies in the bag.



Predict the weight of a bag containing two dozen cookies.

A 16 ounces

B 8 ounces

C 22 ounces

D 14 ounces

2 (A.10B)

Which expression is equivalent to $(6x - 8)(3x + 7)$?

F $18x^2 - 18x + 36$

G $18x^2 + 32x - 80$

H $18x^2 - 80x - 56$

J $18x^2 + 18x - 56$

3 (A.2I)

Write the system of equations represented by the table below.

x	y_1	y_2
-3	-1	-9
-1	-1	-1
1	-1	7
3	-1	15

A $y = -1$, $y = 4x + 3$

B $x = -1$, $y = 4x + 3$

C $y = -1$, $y = \frac{1}{4}x + 3$

D $y = -1x$, $y = \frac{1}{4}x + 3$

Spiral 94

1 (A.2B)

A line passes through (-5, -1) and (3, 0). What is the slope-intercept form of the equation for the line?

F $y = -\frac{1}{2}x - \frac{3}{8}$

G $y = \frac{3}{8}x - \frac{3}{8}$

H $y = \frac{1}{4}x - \frac{3}{8}$

J $y = \frac{1}{8}x - \frac{3}{8}$

2 (A.2E)

Write the equation for a line passing through (-4, 0) and parallel to $x + y = -1$.

A $x - y = -1$

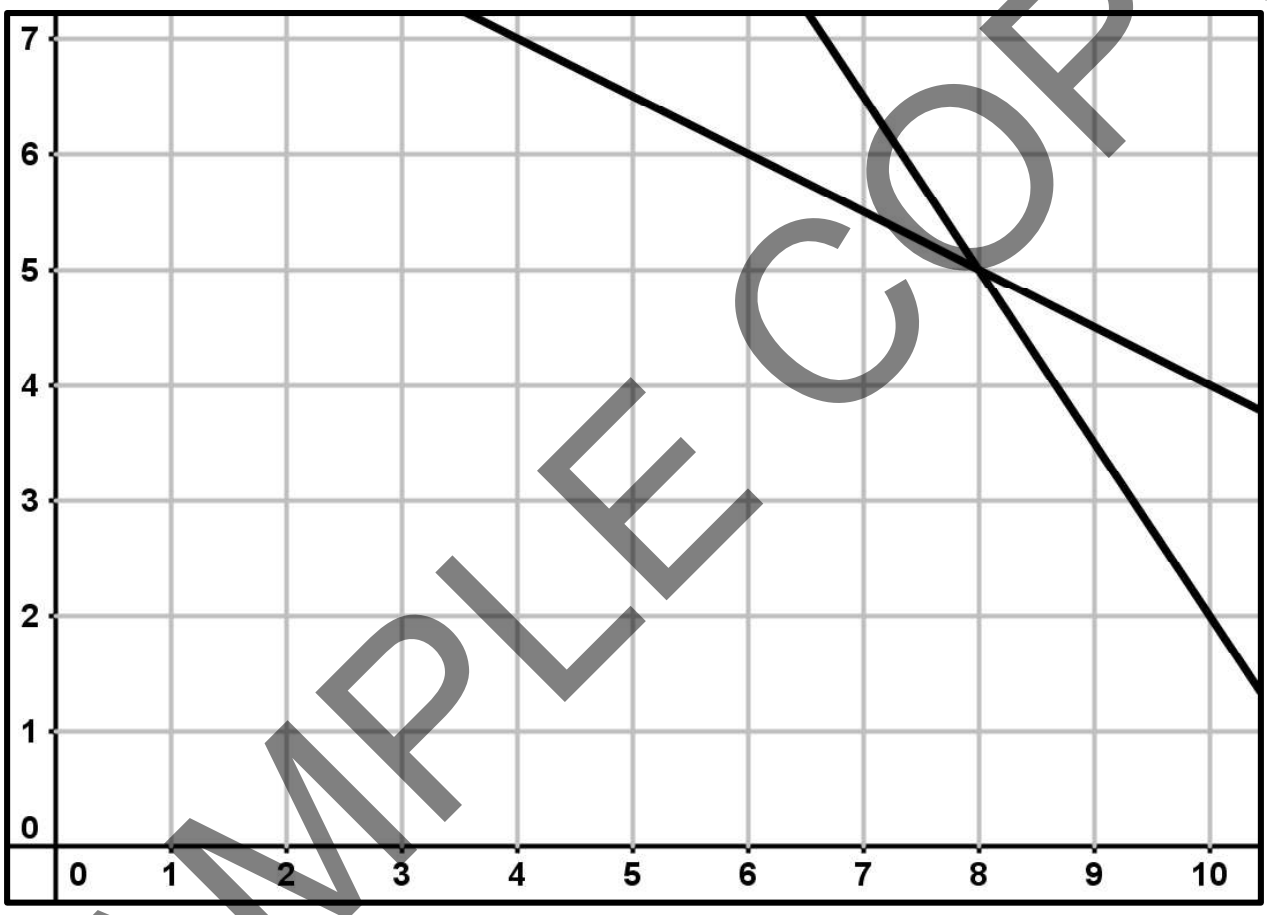
B $x - y = 4$

C $x + y = -4$

D $4x + y = 1$

3 (A.3G)

Students receive a discounted price for tickets to the spring concert. On the first two days of ticket sales a student sold 6 adult tickets and 4 student tickets for a total of $68. On the second day of sales he sold 2 adult tickets and 4 student tickets for a total of $36. Use the graph below to determine the price of each adult ticket.



F Adult tickets cost $9.

G Adult tickets cost $17.

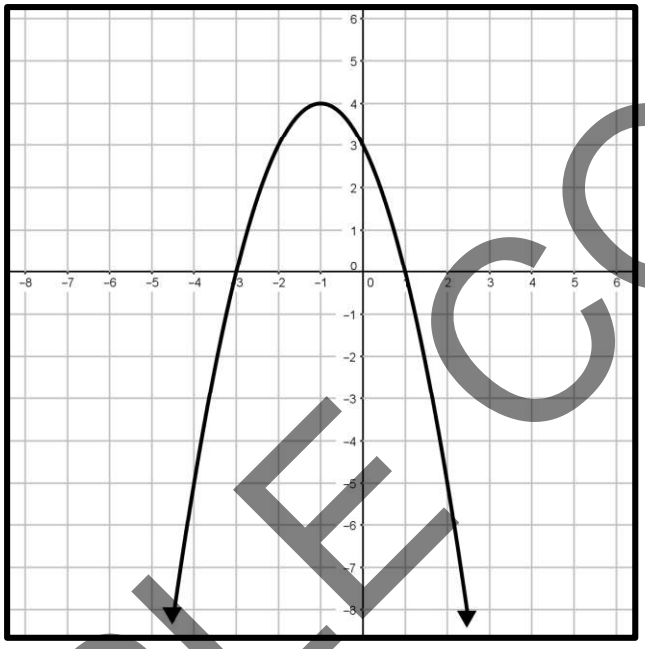
H Adult tickets cost $8.

J Adult tickets cost $5.

Spiral 95

1 (A.7A)

A graph of $f(x) = -x^2 - 2x + 3$ is shown on the grid. Which of the following is a zero of f ?



A 3

B -1

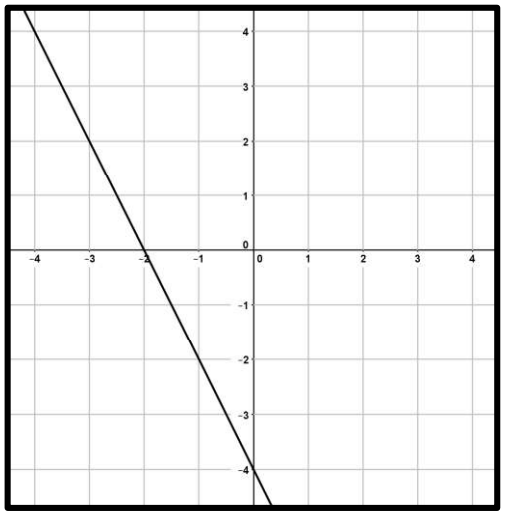
C 4

D 1

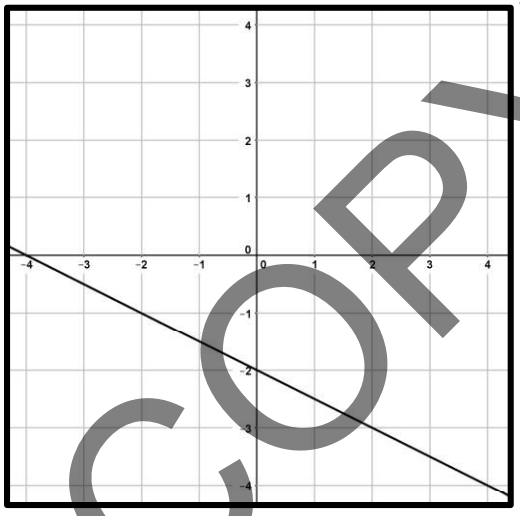
2 (A.3C)

Which graph shows a line with an x-intercept of 2 and a y-intercept of -4?

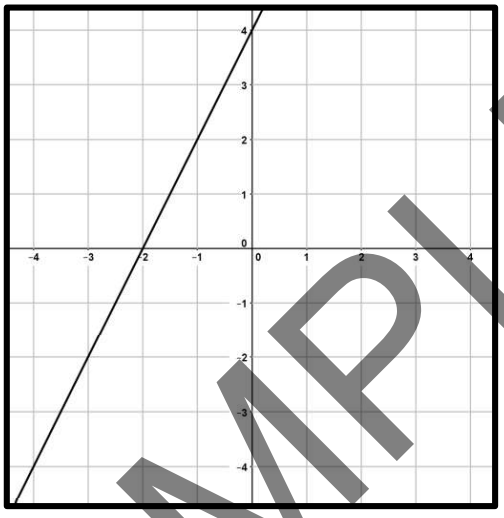
F



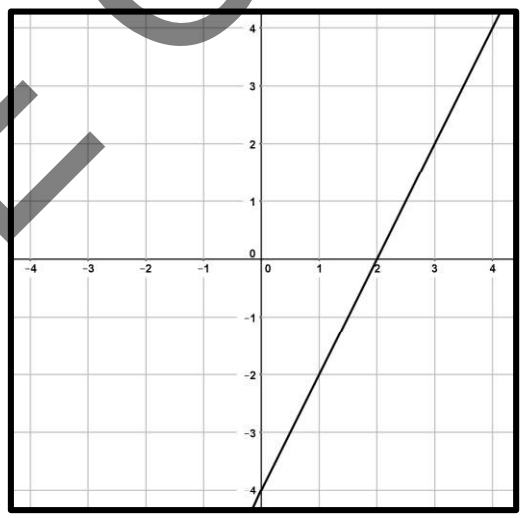
G



H



J



3 (A10F)

Which expression is a factor of $64x^2 - 49$?

A (4x – 1)

B (2x + 7)

C (8x – 9)

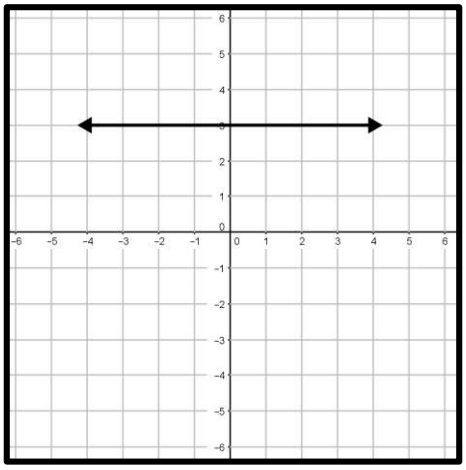
D (8x + 7)

Spiral 96

1 (A.12A)

Which representation does not show a function?

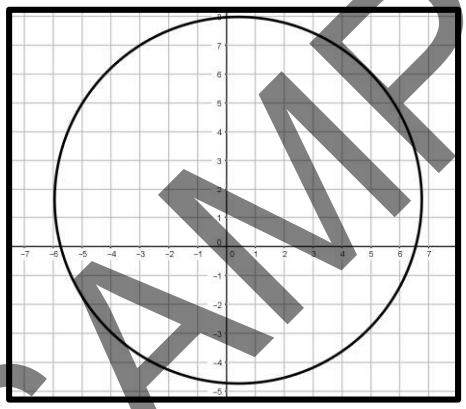
F



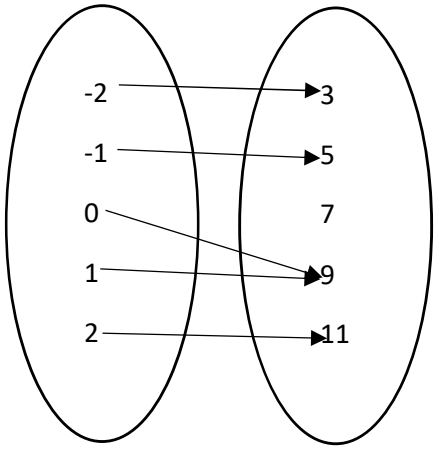
G

x	y
2	3
4	-1
6	1
8	-1
10	3

H



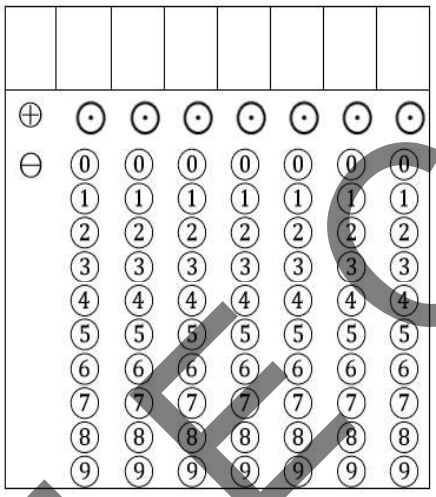
J



2 (A.5C)

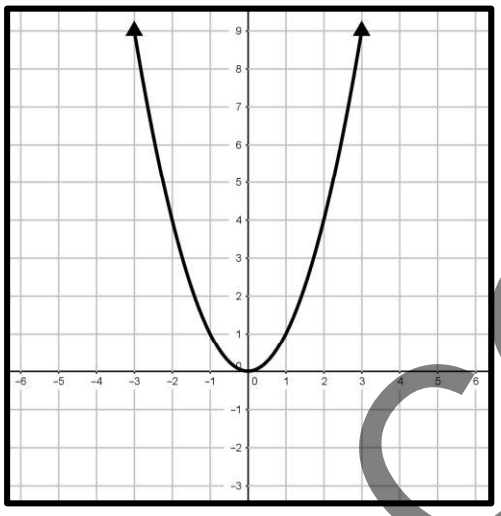
On the first day of the bake sale, 14 pies and 14 cakes were sold for a total of $154. On the second day, 13 pies and 14 cakes were sold for a total of $148. What is the cost of one pie?

Record your answer and fill in the bubbles below.



3 (A.7C)

The graph of $f(x) = x^2$ is shown on the grid.



Which statement about the relationship between the graph of f and the graph $g(x) = x^2 + 3$ of is true?

F The graph of g is narrower than the graph of f.

G The graph of g is wider than the graph of f.

H The graph of g is 3 units below the graph of f.

J the graph of g is 3 units above the graph of f.

Spiral 97

1 (A.8A)

What are the solutions to $4x^2 - 2x = 24$?

A $x = -3$ and $x = 5$

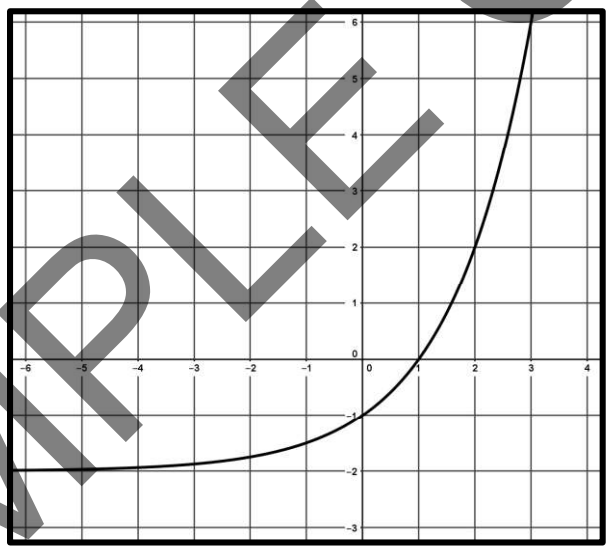
B $x = -7$ and $x = 8$

C $x = -\frac{2}{5}$ and $x = 0$

D $x = \frac{1+\sqrt{97}}{4}$ and $x = \frac{1-\sqrt{97}}{4}$

2 (A.9D)

The graph of an exponential function is shown on the grid.



Based on the graph, which statement about the function is true?

F The horizontal asymptote is -2.

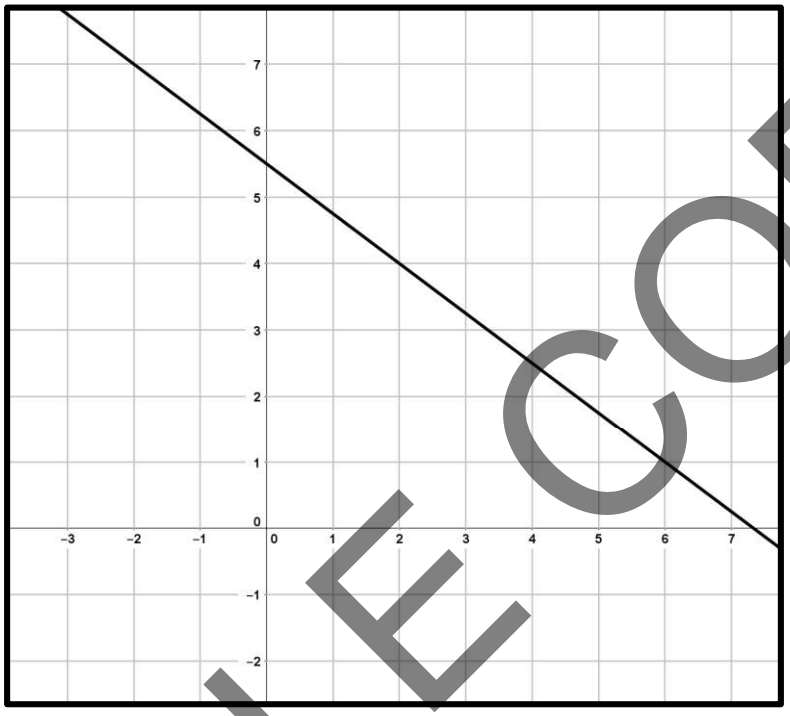
G The x-intercept is 3.

H The vertical asymptote is 0.

J The y-intercept is 3.

3 (A.3A)

What is the slope of the line in the graph below?



A $-\frac{4}{3}$

B –0.75

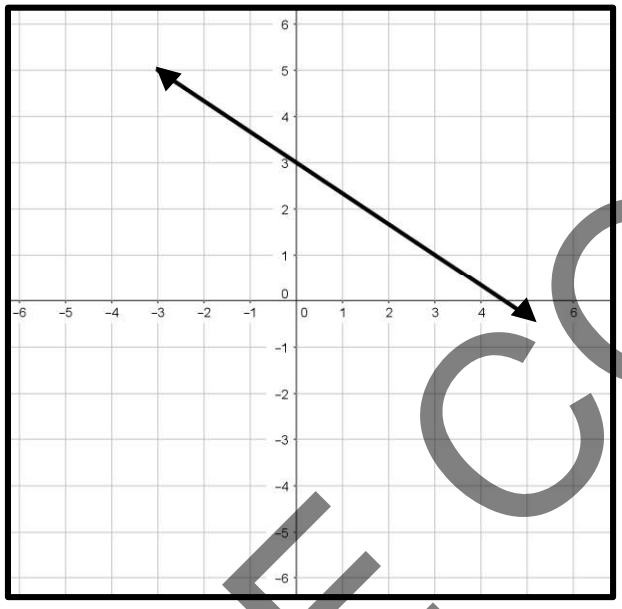
C $-\frac{5}{7}$

D –0.8

Spiral 98

1 (A.2C)

Which function is represented by the graph?



F $f(x)=\frac{2}{3}x+3$

G $f(x)=\frac{3}{2}x+3$

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

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

2 (A.12E)

The formula for slope of a line is $m = \frac{y_2 - y_1}{x_2 - x_1}$. Which formula could be used to determine the missing y-coordinate of a point, if the slope, one point, and an x-coordinate are known?

A $y_2 = m(x_2 + x_1) + y_1$

B $y_2 = m(x_2 - x_1) + y_1$

C $y_2 = \frac{(x_2 - x_1) + y_1}{m}$

D $y_2 = \frac{m(x_2 - x_1)}{y_1}$

3 (A.7B)

Which statement about $f(x) = 2x^2 - 13x + 18$ is true?

F The zeros are $-\frac{9}{2}$ and 2 because $f(x) = (2x + 9)(x - 2)$.

G The zeros are $-\frac{9}{2}$ and -2 because $f(x) = (2x + 9)(x + 2)$.

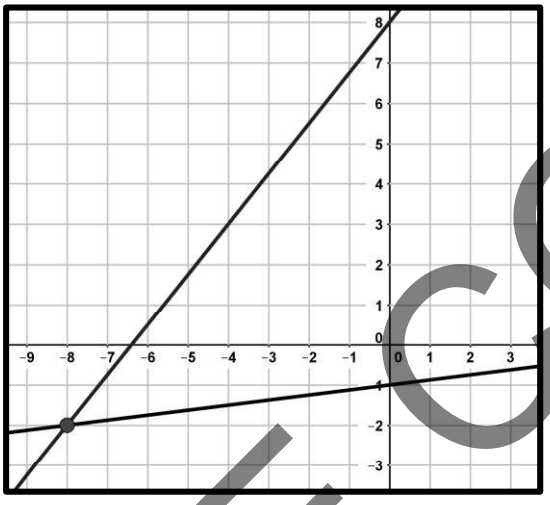
H The zeros are $\frac{9}{2}$ and 2 because $f(x) = (2x - 9)(x - 2)$.

J The zeros are $\frac{9}{2}$ and -2 because $f(x) = (2x - 9)(x + 2)$.

Spiral 99

1 (A.2I)

Write the system of equations represented by the graph below.



A $\begin{aligned} x - 4y &= -32 \\ 5x - 8y &= 8 \end{aligned}$

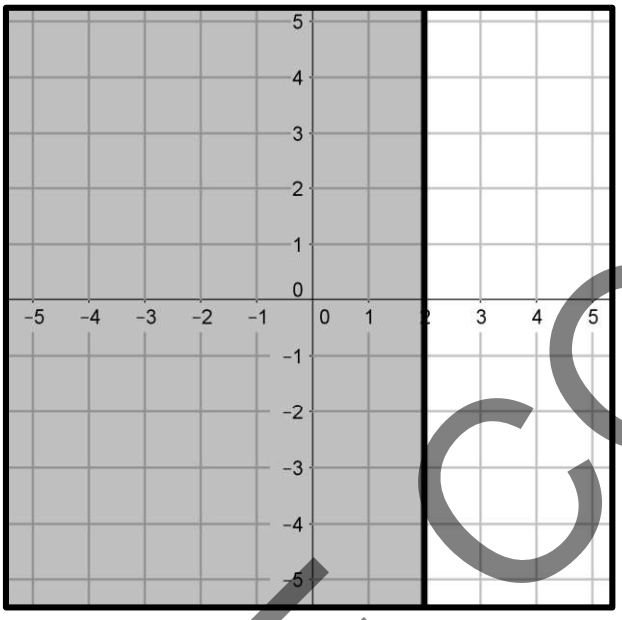
B $\begin{aligned} 5x - 4y &= 8 \\ x - 8y &= -32 \end{aligned}$

C $\begin{aligned} 5x - 4y &= -32 \\ x - 8y &= 8 \end{aligned}$

D $\begin{aligned} 5x + 4y &= 8 \\ x + 8y &= -32 \end{aligned}$

2 (A.3D)

Which function is represented by the graph below?



F $y < 2$ **G** $y \geq 2$ **H** $x \geq 2$ **J** $x \leq 2$

3 (A.6B)

Write the quadratic equation $y = 2(x-2)^2 + 5$ in standard form.

A $y = x^2 - 4x + 4$

B $y = 2x^2 - 8x + 8$

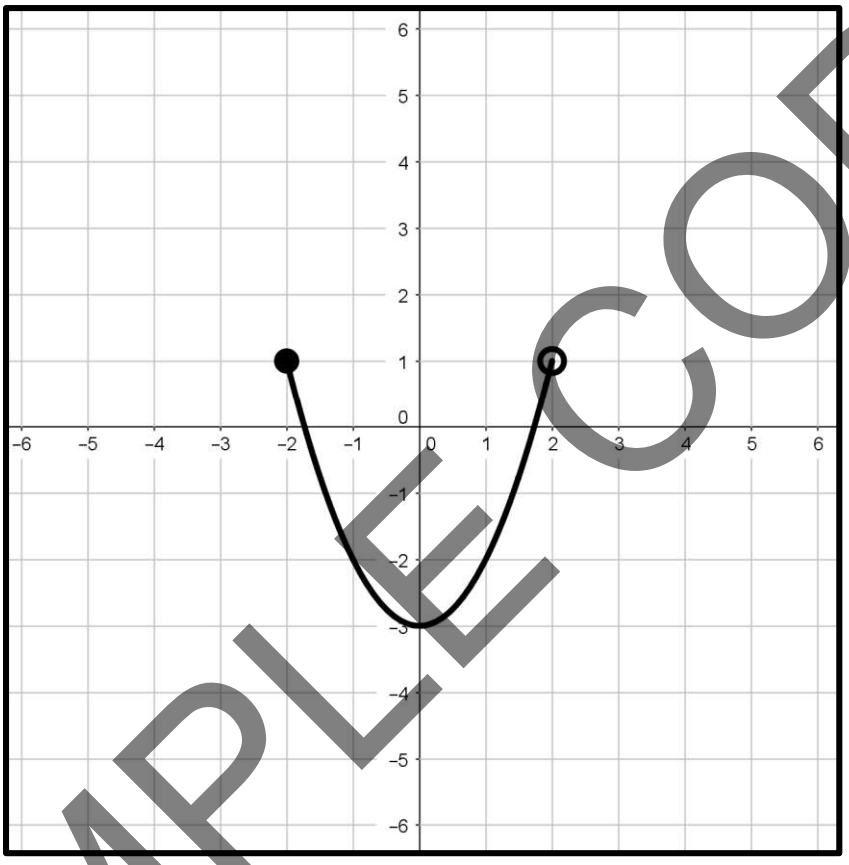
C $y = 2x^2 - 8x + 13$

D $y = 2x^2 - 8x + 18$

Spiral 100

1 (A.6A)

What is the domain of the quadratic function represented by the graph below?



F $-2 \leq x < 2$

G $-3 \leq x < 2$

H $-2 \geq x < 2$

J $-3 \leq y < 2$

2 (A.6C)

Which of the equations below does not describe a function with solutions of 2 and -3?

A $y = 2x^2 + 2x - 12$

B $y = x^2 + x - 6$

C $y = 5x^2 + 5x + 30$

D $y = 5x^2 + 5x - 30$

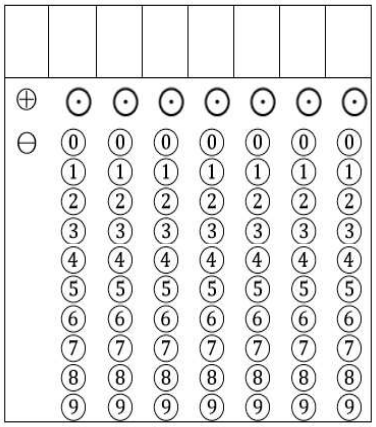
3 (A.3B)

The table shows the amount of dogfood remaining in a fifteen-pound bag in relation to the number of days dogs were fed.

Days	Pounds Remaining
0	15
4	12.2
7	10.1
10	8

What is the rate of change for the data shown in the table?

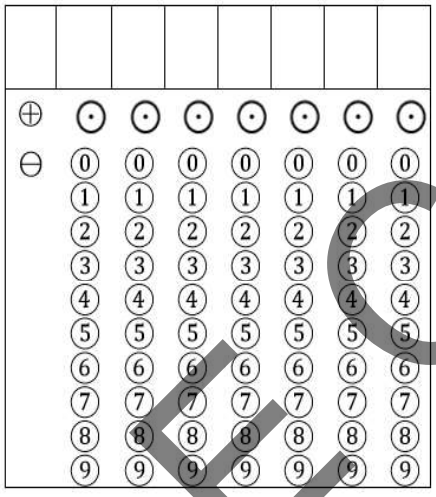
Record your answer and fill in the bubbles below.



Spiral 101

1 (A.2D)

The distance in centimeters on a map is directly proportional to the distance in miles on the ground. If 3.2 cm represents 176 miles on the ground, how many centimeters will represent 429 miles? Record your answer and fill in the bubbles below.



2 (A.6A)

The table shows some ordered pairs that belong to quadratic function *g*.

What is the range of *g*?

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

F All real numbers

G All real numbers greater than or equal to -2

H All real numbers less than or equal to 0

J All real number less than or equal to 4

3 (A.5C)

For a field trip a school transported 642 students on 11 vans and 9 buses. On another field trip the school transported 537 students on 4 vans and 9 buses. Find the number of students that can be transported in each van and each bus.

A van 14; bus 75

B van 20; bus 83

C van 15; bus 53

D van 12; bus 66

Spiral 102

1 (A.6C)

Which equation has the same solutions as $y = (x - 6)^2 - 30$?

F $y = x^2 - 4x$

G $y = x^2 - 12x + 36$

H $y = x^2 - 12x + 6$

J $y = x^2 - 2$

2 (A.10E)

Which expression is equivalent to $7x^2 - 55x + 42$?

A $(7x + 6)(x - 7)$

B $(7x - 6)(x - 7)$

C $(7x + 7)(x - 6)$

D $(7x - 7)(x - 6)$

3 (A.8B)

The entrance to an athletic field is in the shape of an archway, represented by the graph below, with *y* representing the height in feet of the arch above the ground and *x* representing the distance in feet at ground level.

Which quadratic equation best represents this function?

F $f(x) = 10x + x^2$

G $f(x) = 4x(1 - x)$

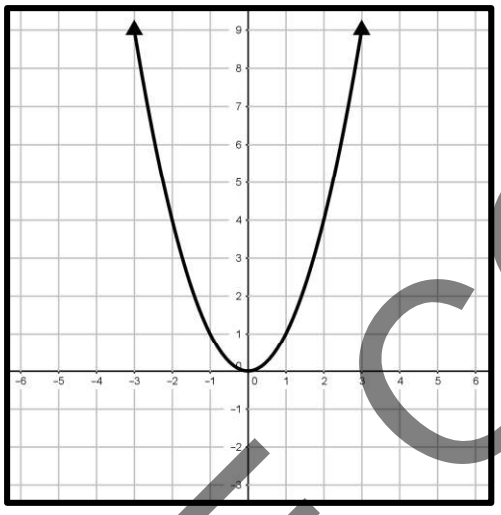
H $f(x) = 12x(2 + x)$

J $f(x) = 12x - x^2$

Spiral 103

1 (A.7C)

The graph of $f(x) = x^2$ is shown on the grid.



Which statement about the relationship between the graph of f and the graph $g(x) = x^2 - 4$ of is true?

A The graph of g is narrower than the graph of f .

B The graph of g is wider than the graph of f .

C The graph of g is 4 units below the graph of f .

D the graph of g is 4 units above the graph of f .

2 (A.7B)

Which statement about $h(x) = 3x^2 - x - 24$ is true?

F The zeros are $-\frac{8}{3}$ and -3 because $h(x) = (3x + 8)(x + 3)$.

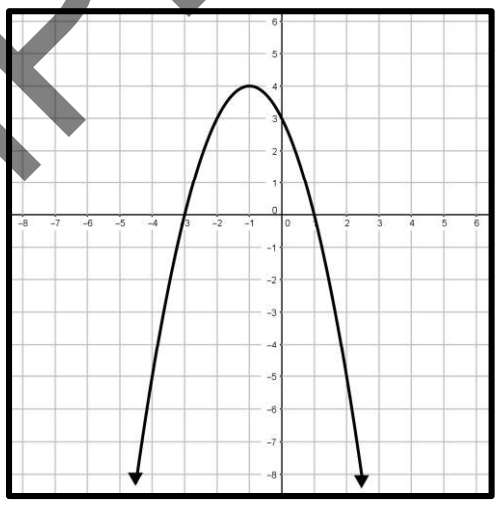
G The zeros are $-\frac{8}{3}$ and 3 because $h(x) = (3x + 8)(x - 3)$.

H The zeros are $\frac{8}{3}$ and -3 because $h(x) = (3x - 8)(x + 3)$.

J The zeros are $\frac{8}{3}$ and 3 because $h(x) = (3x - 8)(x - 3)$.

3 (A.7A)

A graph of $f(x) = -x^2 - 2x + 3$ is shown on the grid. Which of the following is the vertex of f?



A (-1, 4)

B (-3, 0)

C (1, 0)

D (4, -1)

Spiral 104

1 (A.9B)

The exponential growth rate for a population can be determined by the formula, $A = Pk^t$, where A is the final amount, P is the beginning amount, k is the constant rate of change, and t is the time. A biologist used the formula, $A = 10(2)^{12}$, regarding the rabbit population in a defined area.

The biologist wanted to determine…

F the number of months necessary for the population to double.

G the initial number of rabbits in the population based on the final count.

H the constant rate of population growth.

J the total population of rabbits after a designated time.

2 (A.9C)

The table contains some points on the graph of an exponential function.

x	0	1	2	3	4
y	3	9	27	81	243

Based on the table, which function represents the same relationship?

A $f(x) = 2(2)^x$

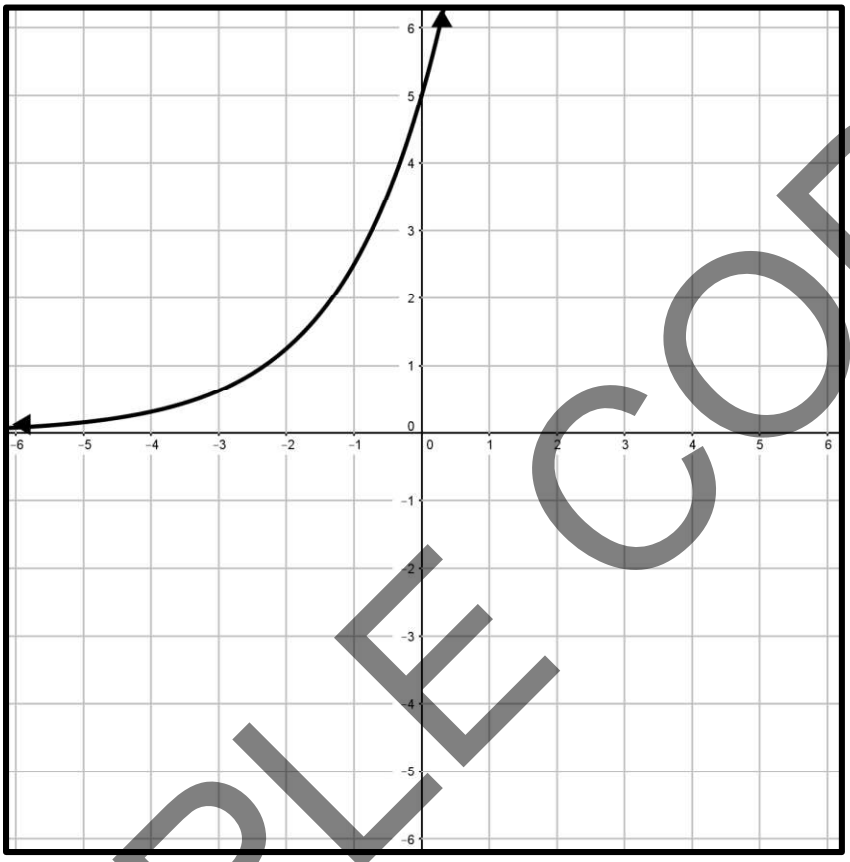
B $f(x) = 3(2)^x$

C $f(x) = 2(3)^x$

D $f(x) = 3(3)^x$

3 (A.9D)

The graph of an exponential function is shown on the grid.



Based on the graph, which statement about the function is true?

F The graph shows exponential growth with a y-intercept of 5.

G The graph shows exponential growth with a vertical asymptote of 1.

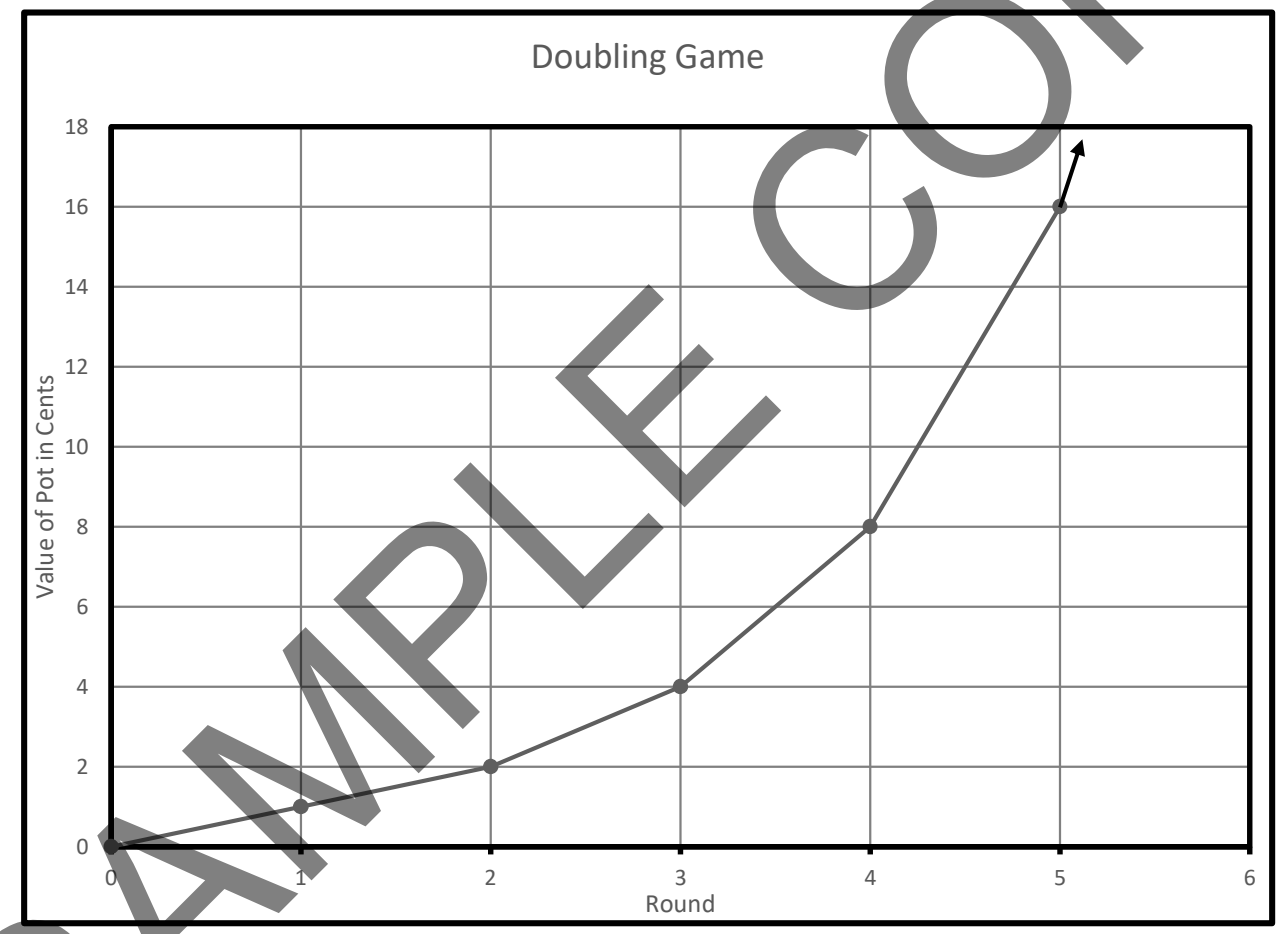
H The graph shows exponential decay with an x-intercept of 5.

J The graph shows exponential decay with a horizontal asymptote of 1.

Spiral 105

1 (A.9D)

A student played a doubling game with his neighbor. Each round the amount in the pot doubled, starting with a penny in round one. The graph below shows the amount in the pot for each round. The y-axis represents the amount in the pot, while the x-axis represents the number of rounds played.



Which round was the first to be worth more than a dime?

A Round 5

B Round 4

C Round 2

D Round 6

2 (A.9C)

The exponential growth rate for bacteria can be determined by the formula, $A = Pk^t$, where A is the final amount, P is the beginning amount, k is the constant rate of change, and t is the time. Which equation represents the function for the population of a bacterial colony after 30 minutes that started with 20 cells and doubles every 2 minutes?

F $A = 20(2)^{15}$

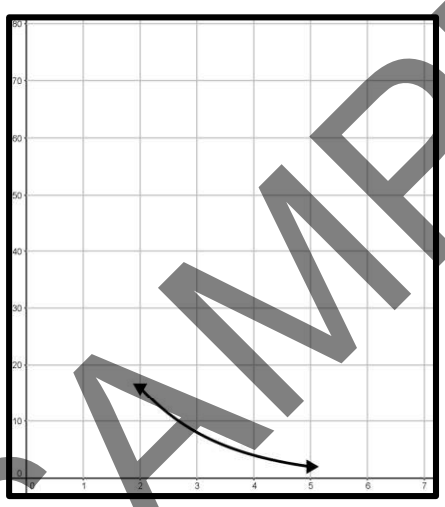
G $A = 20(2)^{30}$

H $20 = P(2)^{15}$

J $A = 20(\frac{1}{2})^{15}$

3 (A.9E)

The number of teams in a single-elimination tournament decreases exponentially each round. The graph and table show partial data for a tournament.



Round	Teams
2	16
3	8

Which round will determine the winner?

A 4

B 6

C 8

D 10

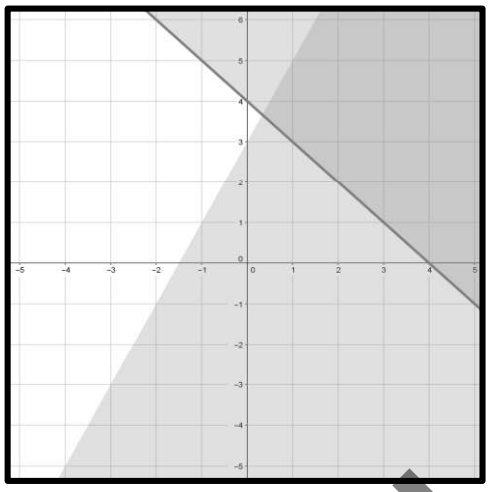
Spiral 106

1 (A.3H)

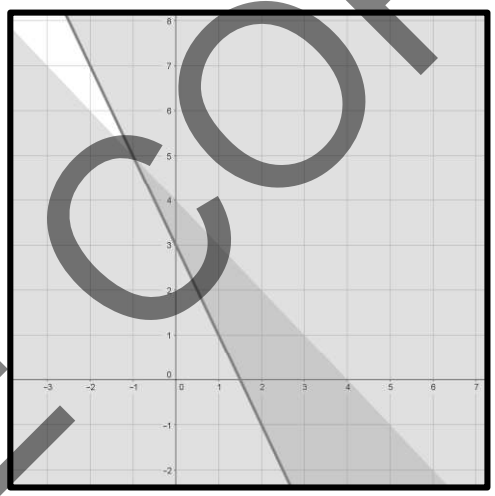
Which graph represents the system of inequalities?

$$y > -x + 2$$
$$y \leq x + 2$$

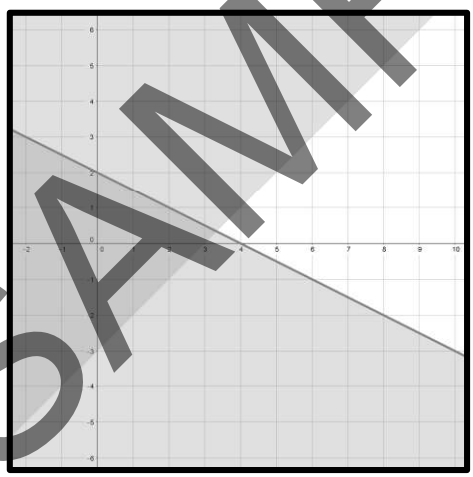
F



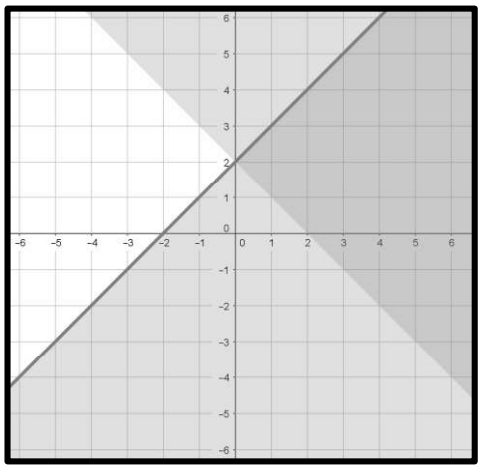
G



H

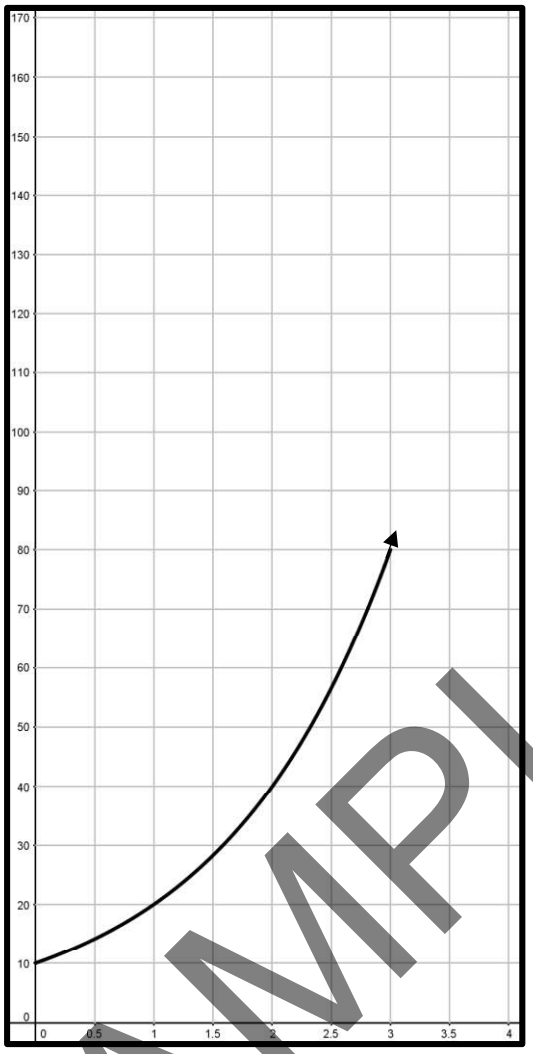


J



2 (A.9E)

A biologist counts the number of euglena in a hay infusion at one-hour intervals. The results are shown in the graph and table below.



Time	Count
0	10
1	20
2	40
3	80

Based on the data, what is the most reasonable prediction of the euglena count at 3.5 hours?

A 80

B 160

C 113

D 200

3 (A.8A)

What are the solutions to $x^2 - 30 = x$?

F $x = 6$ and $x = -5$

G $x = -7$ and $x = 8$

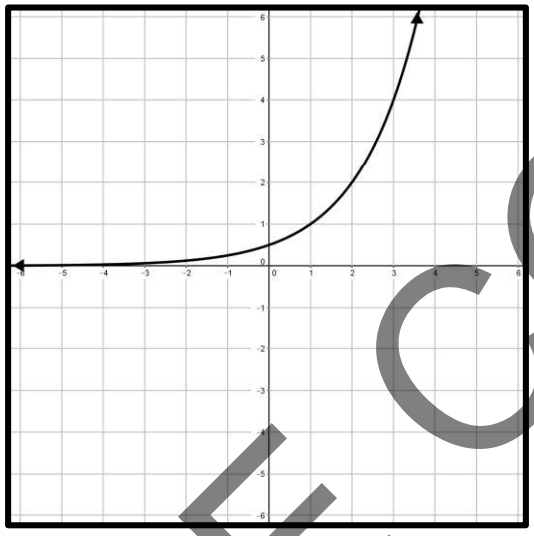
H $x = -\frac{2}{5}$ and $x = 0$

J $x = \frac{1+\sqrt{97}}{4}$ and $x = \frac{1-\sqrt{97}}{4}$

Spiral 107

1 (A.9A)

The graph of an exponential function is shown on the grid.



Based on the graph, which statement about the function is true?

A The range is the set of all real numbers less than 0.

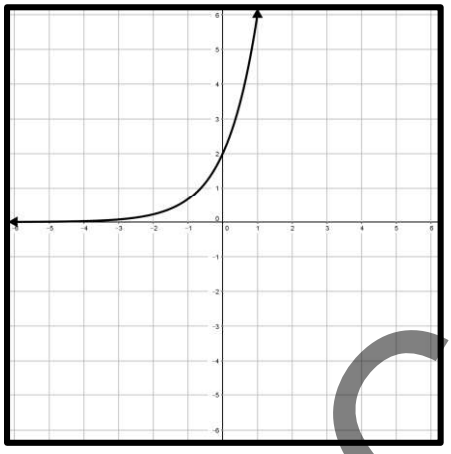
B The domain is the set of all real numbers greater than 4.

C The range is the set of all real numbers greater than 0.

D The domain is the set of all real numbers less than 4.

2 (A.9A)

The graph of an exponential function is shown on the grid.



Based on the graph, which statement about the function is true?

F The range is the set of all real numbers less than 0.

G The domain is the set of all real numbers greater than 1.

H The domain is the set of all real numbers.

J The range is the set of all real numbers less than 1.

3 (A.10C)

Which expression is equivalent to $(2x^2 + 13x + 19) \div (x + 3)$?

A $x + 5 + \frac{2}{x+3}$

B $2x + 7 + \frac{4}{x+3}$

C $2x + 7 - \frac{2}{x+3}$

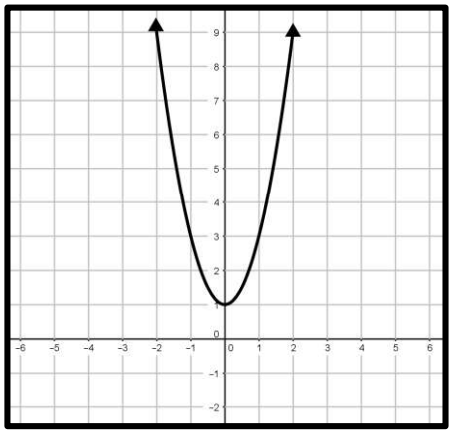
D $2x - 7 - \frac{2}{x+3}$

Spiral 108

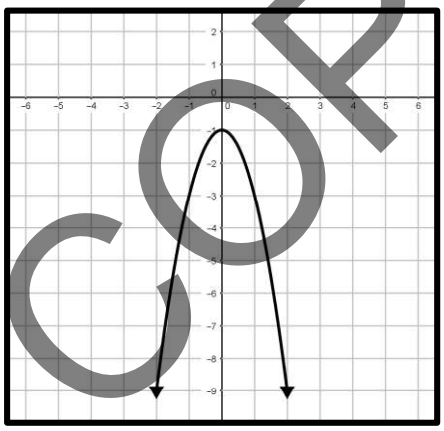
1 (A.7C)

Function f is in the form $y = ax^2 + c$. If the values of a and c are both greater than 0, which graph could represent f?

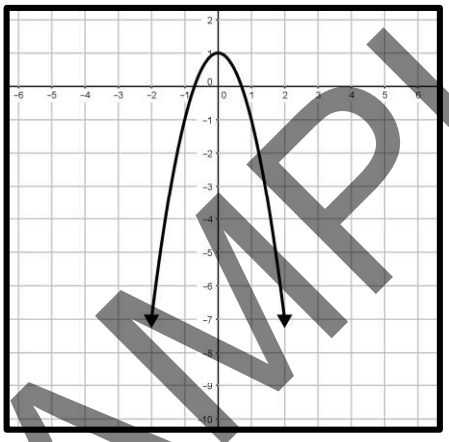
F



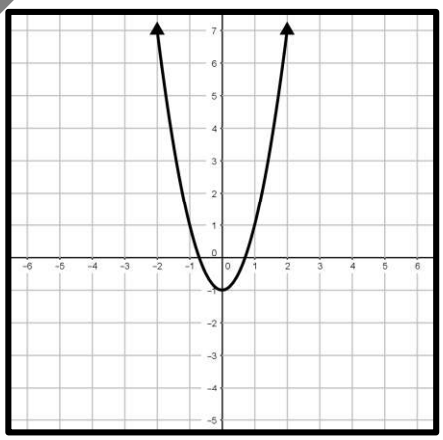
G



H

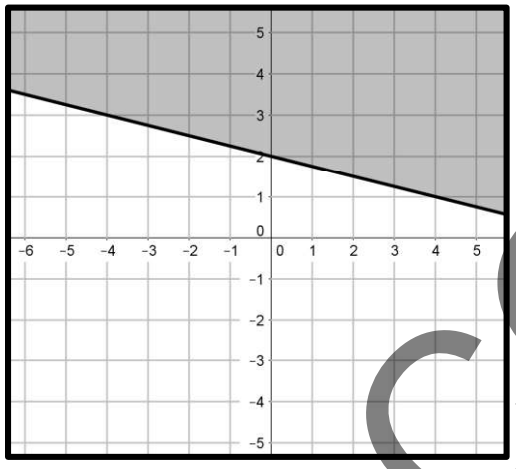


J



2 (A.3D)

Which inequality is represented by the graph below?



A $x + 4y < 8$

B $x + 4y \geq 8$

C $x - 4y \leq 8$

D $x + 4y > 8$

3 (A.7B)

Which statement about $g(x) = -5x^2 - 28x - 15$ is true?

F The zeros are $\frac{3}{5}$ and 5 because $g(x) = (5x - 3)(x - 5)$.

G The zeros are $\frac{3}{5}$ and -5 because $g(x) = (5x - 3)(x + 5)$.

H The zeros are $-\frac{3}{5}$ and -5 because $g(x) = (5x - 3)(x + 5)$.

J The zeros are $-\frac{3}{5}$ and 5 because $g(x) = (5x + 3)(x - 5)$.

SpiralEd Solutions

Spiral 109

1 (A.8A)

What are the solutions to $x^2 - 8x = 0$?

A $x = -3$ and $x = 5$

B $x = 0$ and $x = 8$

C $x = -\frac{2}{5}$ and $x = 0$

D $x = \frac{1+\sqrt{97}}{4}$ and $x = \frac{1-\sqrt{97}}{4}$

2 (A.7B)

Which statement about $h(x) = x^2 - 16x + 60$ is true?

F The zeros are 6 and 10 because $h(x) = (x-6)(x-10)$.

G The zeros are 6 and -10 because $h(x) = (x-6)(x+10)$.

H The zeros are -6 and -10 because $h(x) = (x+6)(x+10)$.

J The zeros are -6 and 10 because $h(x) = (x+6)(x-10)$.

3 (A.7B)

Which statement about $g(x) = x^2 - 14x + 48$ is true?

A The zeros are 6 and 8 because $g(x) = (x-6)(x-8)$.

B The zeros are 6 and -8 because $g(x) = (x-6)(x+8)$.

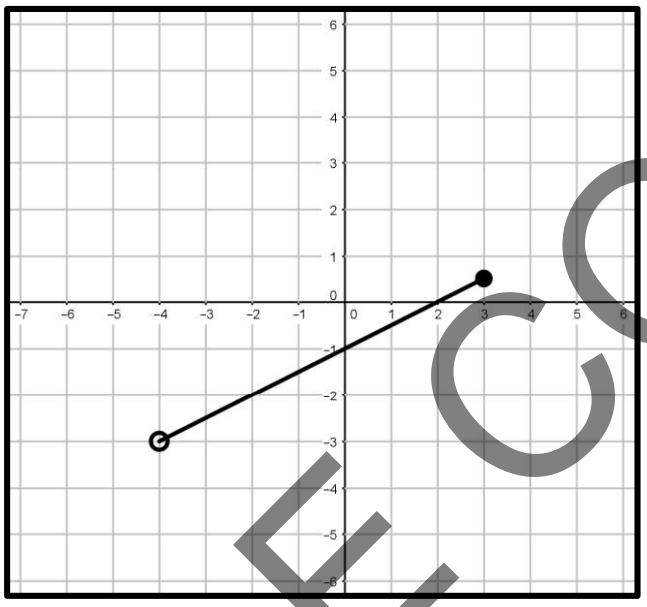
C The zeros are -6 and 8 because $g(x) = (x+6)(x-8)$.

D The zeros are -6 and -8 because $g(x) = (x+6)(x+8)$.

Spiral 110

1 (A.2A)

What is the range of the linear function shown in the graph?



F $-4 < x \leq 3$

G $-3 < y \leq 0.5$

H $-4 \leq y \leq 3$

J $-3 < x \leq 0.5$.

2 (A.6B)

Write the equation for a quadratic function with a vertex at (2, 0) and passing through (1, 3).

A $y = 2x^2$

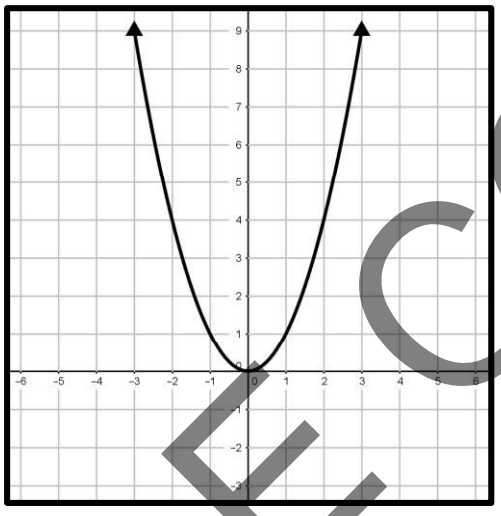
B $y = 2x^2 + 1$

C $y = -x^2 + 1$

D $y = 3(x - 2)^2$

3 (A.7C)

The graph of $f(x) = x^2$ is shown on the grid.



Which statement about the relationship between the graph of f and the graph of $g(x) = -x^2$ is true?

F The graph of g is narrower than the graph of f .

G The graph of g is wider than the graph of f .

H The graph of g is reflected over the x-axis from the graph of f .

J the graph of g is reflected over the y-axis from the graph of f .

Spiral 111

1 (A.11A)

Simplify $\sqrt{200}$.

A $2\sqrt{50}$

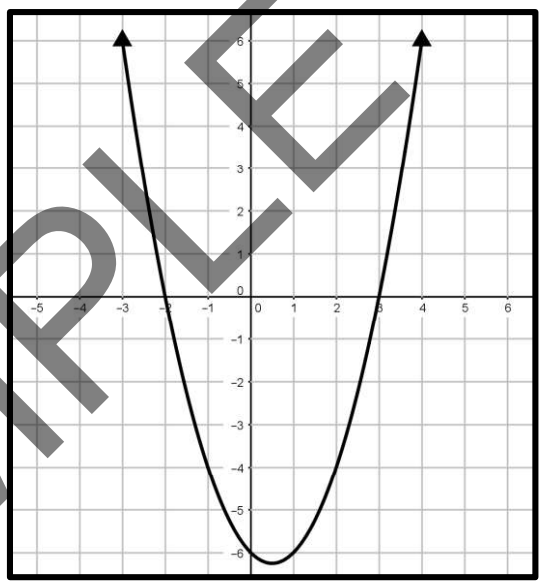
B $10\sqrt{2}$

C $2\sqrt{10}$

D $50\sqrt{2}$

2 (A.7A)

A graph of $y = x^2 - x - 6$ is shown on the grid. Which of the following is a root of this function?



F (0, -6)

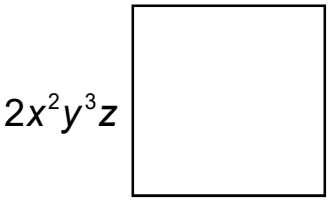
G (0, 3)

H (3, 0)

J (-6, 0)

3 (A.11B)

The length of one side of a square is shown below. Which expression is equivalent to the area of the square?



A $8x^2y^3z$

B $4x^2y^3z$

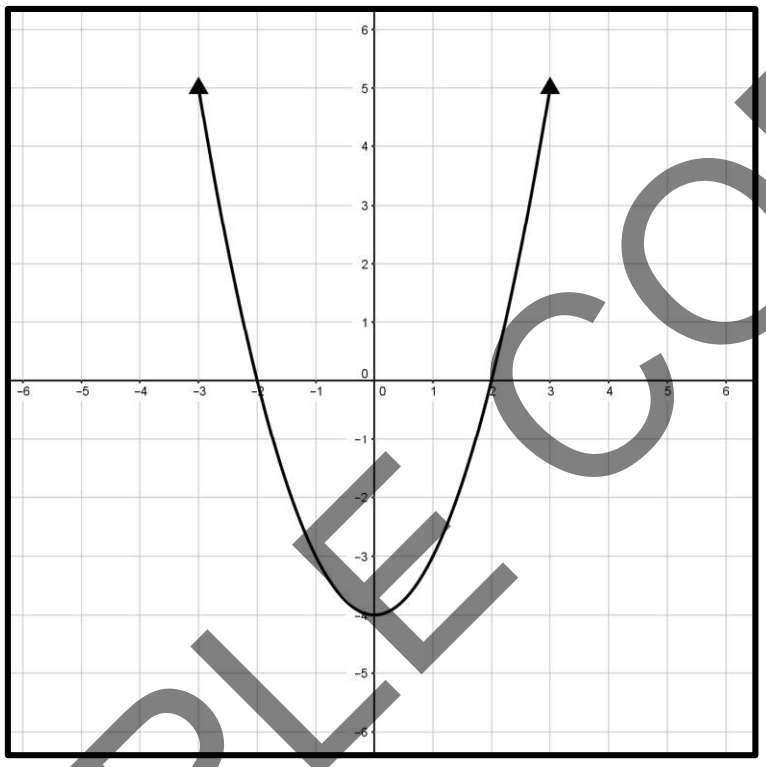
C $4x^4y^9z^2$

D $4x^4y^6z^2$

Spiral 112

1 (A.6C)

Which equation has the same solutions as the graph shown below?



F $y = 2x^2 - 8$

G $y = x^2 - 12x + 36$

H $y = x^2 - 12x + 6$

J $y = x^2 - 2$

2 (A.6A)

The table shows some ordered pairs that belong to quadratic function *g*.

What is the range of *g*?

x	-2	-1	0	1	2	3	4
y	-7	-2	1	2	1	-2	-7

A All real numbers

B All real numbers greater than or equal to -2

C All real numbers less than or equal to 2

D All real number less than or equal to 4

3 (A10E)

Which expression is a factor of $x^2 + 3x - 10$?

F (x + 10)

G (x – 1)

H (x + 5)

J (x + 2)

Spiral 113

1 (A.2I)

Write the system of equations represented by the table below.

x	y_1	y_2
-12	-1.5	-4
-8	-3	-3
-4	-4.5	-2
0	-6	-1

A $y = -\frac{3}{8}x - 6$
$y = \frac{1}{4}x + 1$

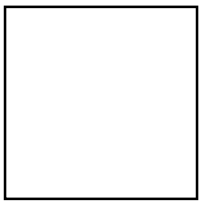
B $y = \frac{3}{8}x - 6$
$y = \frac{1}{4}x - 1$

C $y = \frac{3}{8}x - 6$
$y = -\frac{1}{4}x - 1$

D $y = -\frac{3}{8}x - 6$
$y = \frac{1}{4}x - 1$

2 (A.11B)

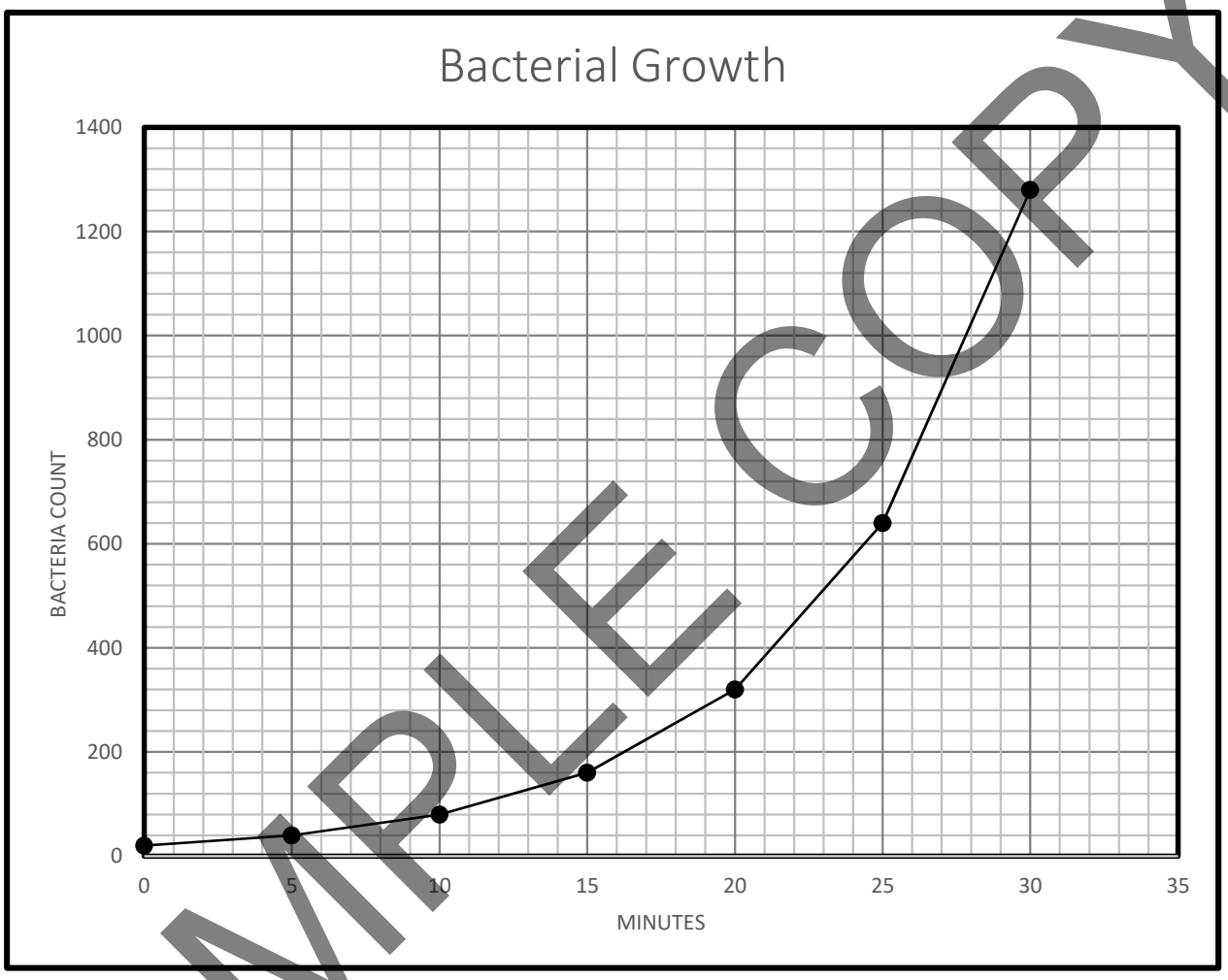
The length of one side of a square is shown below. Which expression is equivalent to the area of the square?

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

F $\frac{2x^3y^2}{z}$ **G** $\frac{2x^6y^4}{z^2}$ **H** $\frac{x^6y^4}{z^2}$ **J** $\frac{x^6y^2}{z}$

3 (A.9D)

A biologist counts the number of bacteria in a culture at five-minute intervals, shown in the graph below.



What conclusion can be drawn from the data represented by the graph?

A The number of bacteria tripled every five minutes.

B At 25 minutes the count was greater than 600.

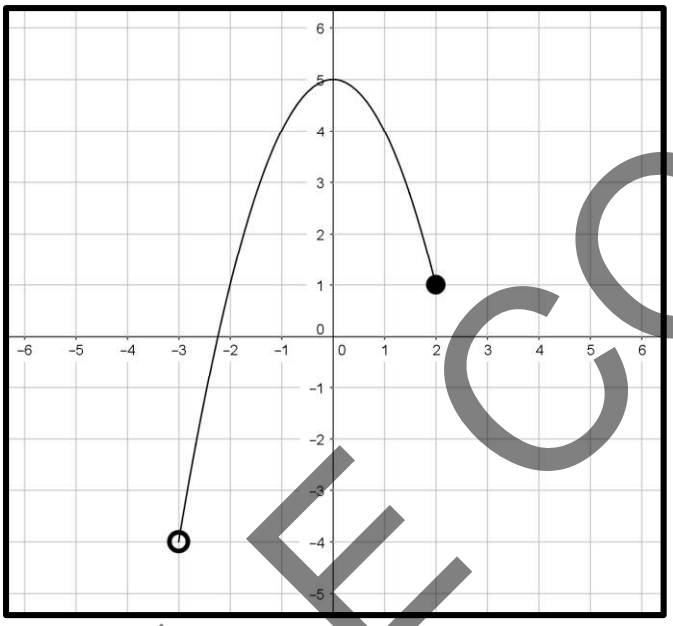
C The number of bacteria doubled every ten minutes.

D At 20 minutes the count was greater than 400.

Spiral 114

1 (A.6A)

What is the domain of the quadratic function represented by the graph below?



F $x \leq 5$

G $y \leq 5$

H $-3 < x \leq 2$

J $-3 \leq x < 2$

2 (A.9C)

Compound interest on an investment can be determined using the formula, $A = P(1+r)^t$, where A is the future value, P is the beginning principle, r is the constant rate of change, and t is the time in years. Which equation represents the value of an investment after 3 years compounded annually, with an initial investment of \$5000 at a rate of 2.3%?

A $A = 5000(1+0.23)^3$

B $A = 5000(1+0.023)^3$

C $5000 = P(1+0.23)^3$

D $A = 5000(0.23)^3$

3 (A.9C)

The cost of college textbooks has increased 2% each year since 2010. If the cost of a book was \$38 in 2010. Which equation could be used to determine the cost, C, of the textbook t years after 2010?

F $C = 38(1+0.20)^t$

G $C = 38(0.02)^t$

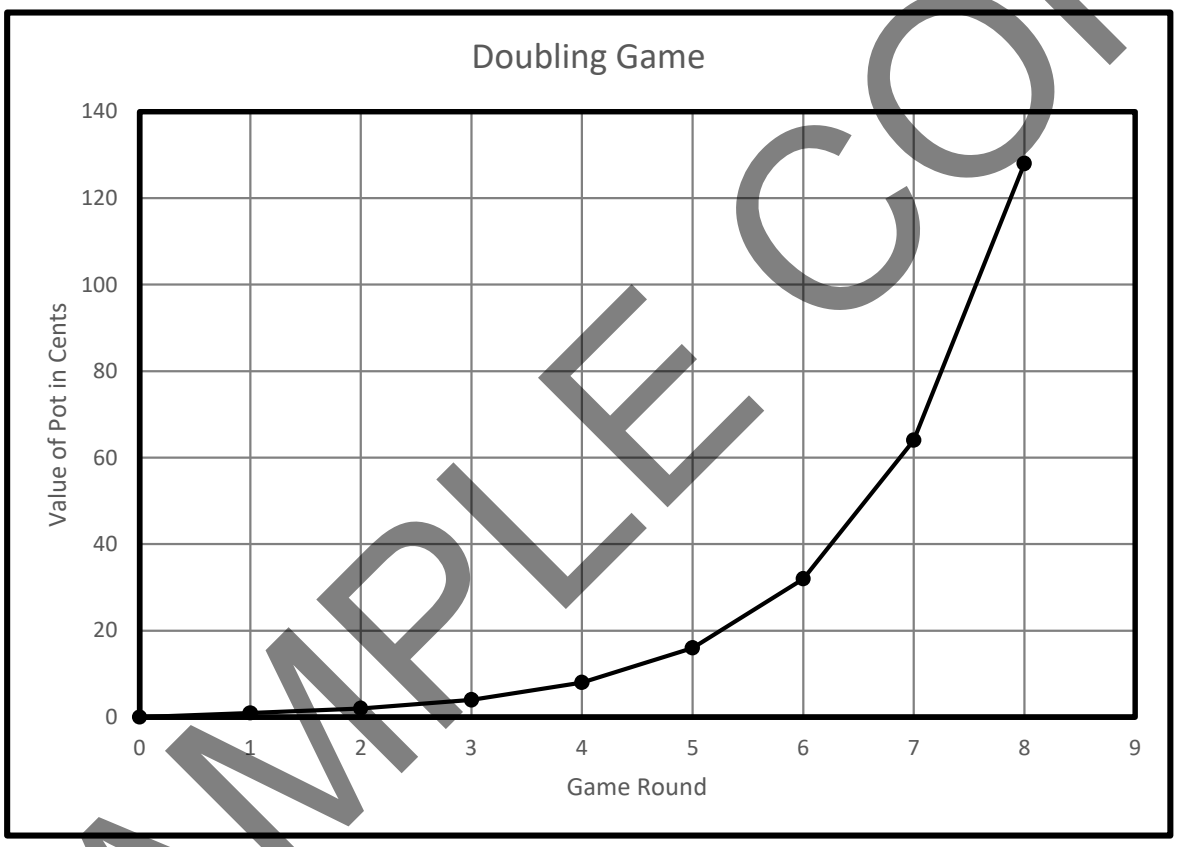
H $C = 38(1+0.02)^t$

J $38 = C(1+0.02)^t$

Spiral 115

1 (A.9D)

A student played a doubling game with his neighbor. Each round the amount in the pot doubled, starting with a penny in round one. The graph below shows the amount in the pot for each round. The y-axis represents the amount in the pot, while the x-axis represents the number of rounds played.



Which round was the first to be worth more than a Dollar?

A Round 6

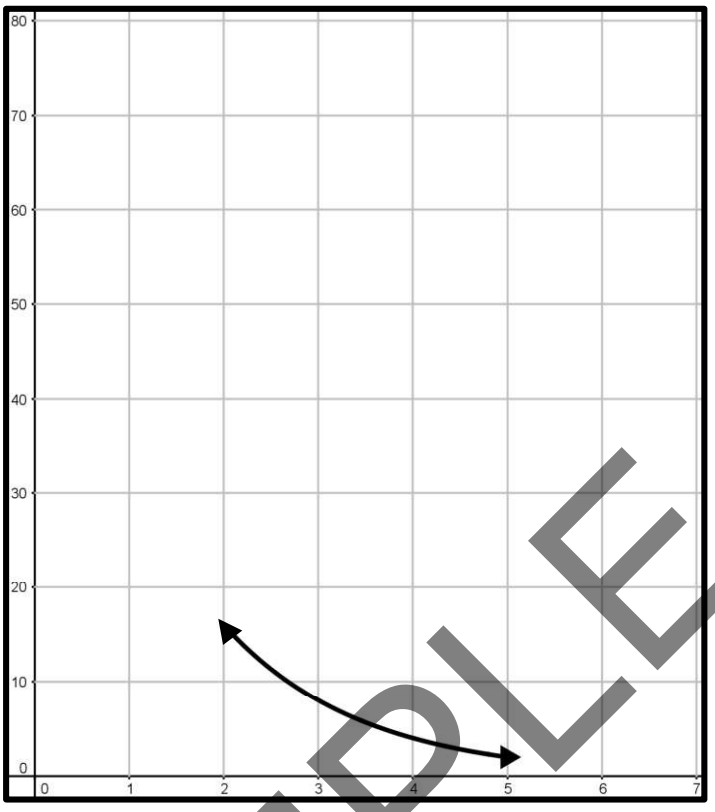
B Round 7

C Round 8

D Round 3

2 (A.9E)

The number of teams in a single-elimination tournament decreases exponentially each round. The graph and table show partial data for a tournament, indicating the number of teams remaining after each round.



Round	Teams
2	16
3	8

How many teams started in the tournament?

F 32

G 64

H 128

J 256

3 (A.2I)

Write the system of equations represented by the table below.

x	y_1	y_2
-6	-0.5	-3.5
-4	-1	-1
-2	-1.5	1.5
0	-2	-4

A $y = \frac{1}{4}x - 2$
$y = \frac{5}{4}x + 4$

B $y = -\frac{1}{4}x - 2$
$y = \frac{5}{4}x + 4$

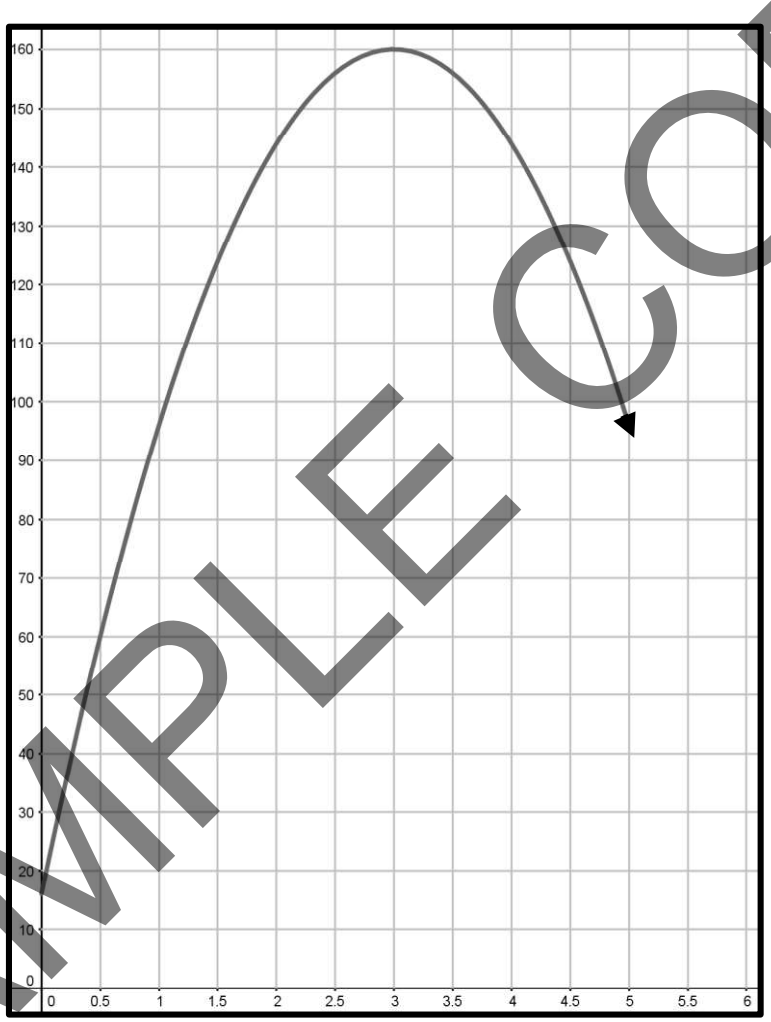
C $y = -\frac{1}{4}x - 2$
$y = \frac{5}{4}x - 4$

D $y = -\frac{1}{4}x - 2$
$y = \frac{4}{5}x + 4$

Spiral 116

1 (A.8B)

An object is launched from a ledge above ground level at an initial vertical velocity of 96 feet per second. Its height, H, in feet, at t seconds is represented by the graph below.



Approximately how high above ground level is the ledge from which the object was launched?

F 6 feet

G 160 feet

H 16 feet

J 3 feet

2 (A.12C)

Given the pattern, $\frac{1}{2}, \frac{1}{6}, -\frac{1}{6}, -\frac{1}{2}\ldots$, what is the value of the 6th term?

A $-\frac{7}{6}$

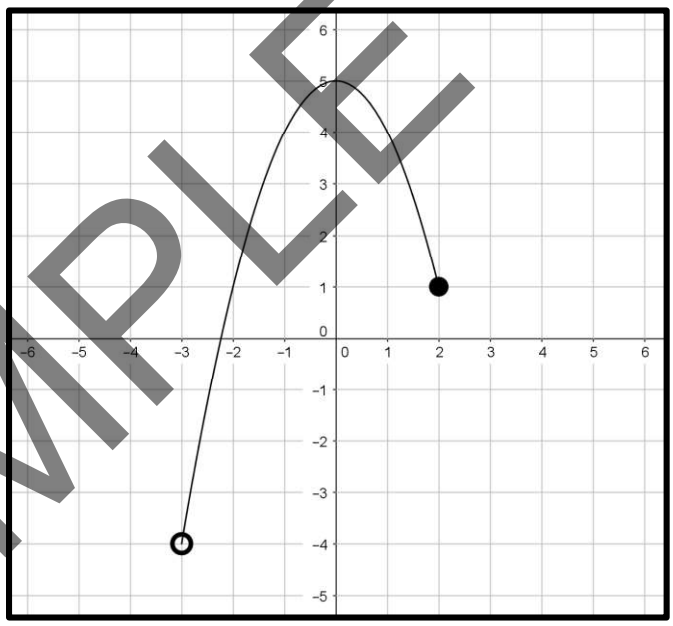
B $-\frac{5}{6}$

C $-\frac{3}{2}$

D $-\frac{4}{3}$

3 (A.6A)

What is the range of the quadratic function represented by the graph below?



F $x \leq 5$

G $y \leq 5$

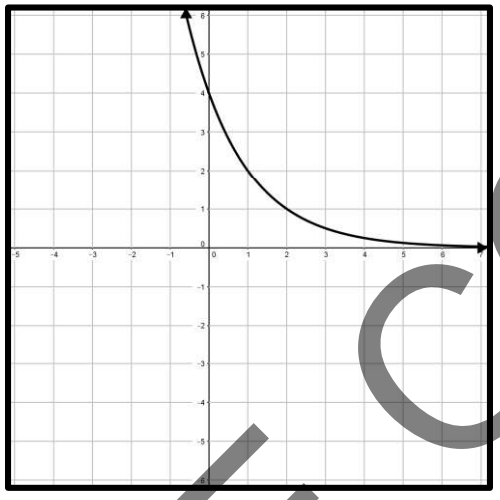
H $-3 < x \leq 2$

J $-4 < x \leq 5$

Spiral 117

1 (A.9A)

The graph of an exponential function is shown on the grid.



Based on the graph, which statement about the function is true?

A The range is the set of all real numbers less than 0.

B The domain is the set of all real numbers greater than -1.

C The range is the set of all real numbers greater than 0.

D The domain is the set of all real numbers less than -1.

2 (A.5C)

A bag contains nickels and dimes for a total of 81 coins with a total value of $6.75.

How many of each type of coin are in the bag?

F 40 nickels; 41 dimes

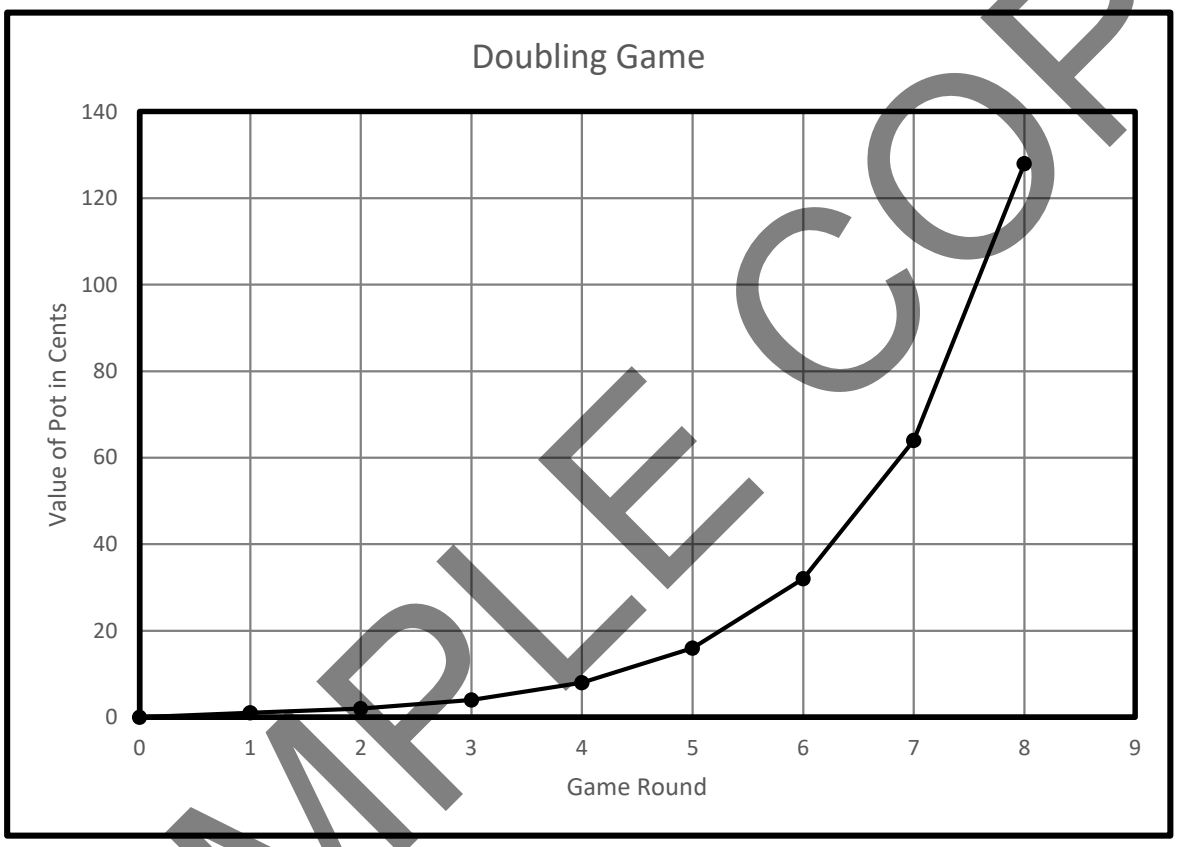
G 17 nickels; 64 dimes

H 62 nickels; 19 dimes

J 27 nickels; 54 dimes

3 (A.9D)

A student played a doubling game with his neighbor. Each round the amount in the pot doubled, starting with a penny in round one. The graph below shows the amount in the pot for each round. The y-axis represents the amount in the pot, while the x-axis represents the number of rounds played.



What was the value of the pot in round 7?

A $1.28

B $0.32

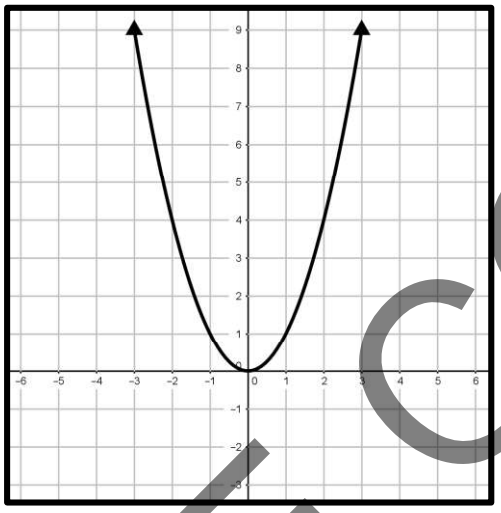
C $0.62

D $0.64

Spiral 118

1 (A.7C)

The graph of $f(x) = x^2$ is shown on the grid.



Which statement about the relationship between the graph of f and the graph $g(x) = \frac{1}{5}x^2$ of is true?

F The graph of g is narrower than the graph of f .

G The graph of g is wider than the graph of f .

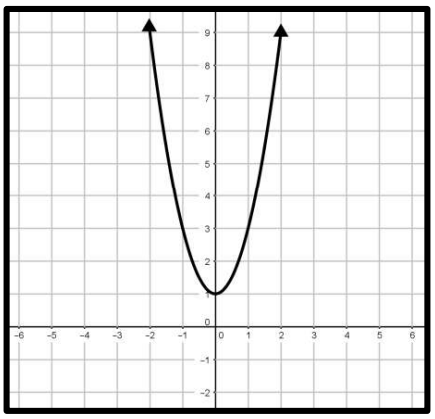
H The graph of g is 5 units below the graph of f .

J the graph of g is 5 units above the graph of f .

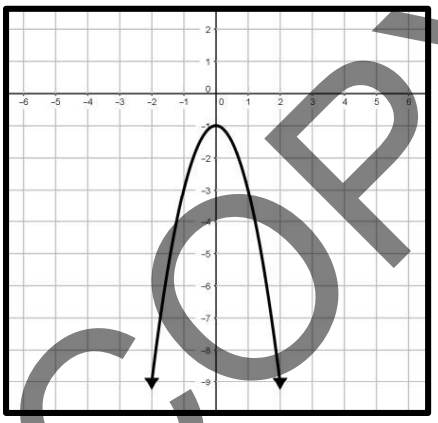
2 (A.7C)

Function f is in the form $y = ax^2 + c$. If the values of a and c are both less than 0, which graph could represent f?

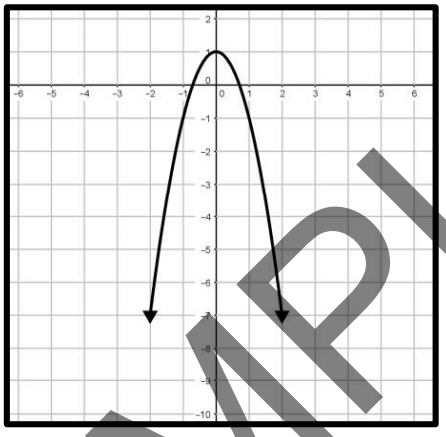
A



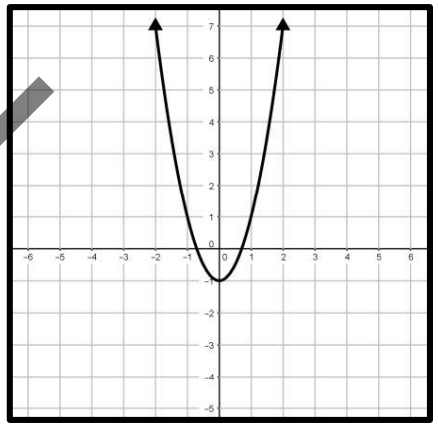
B



C

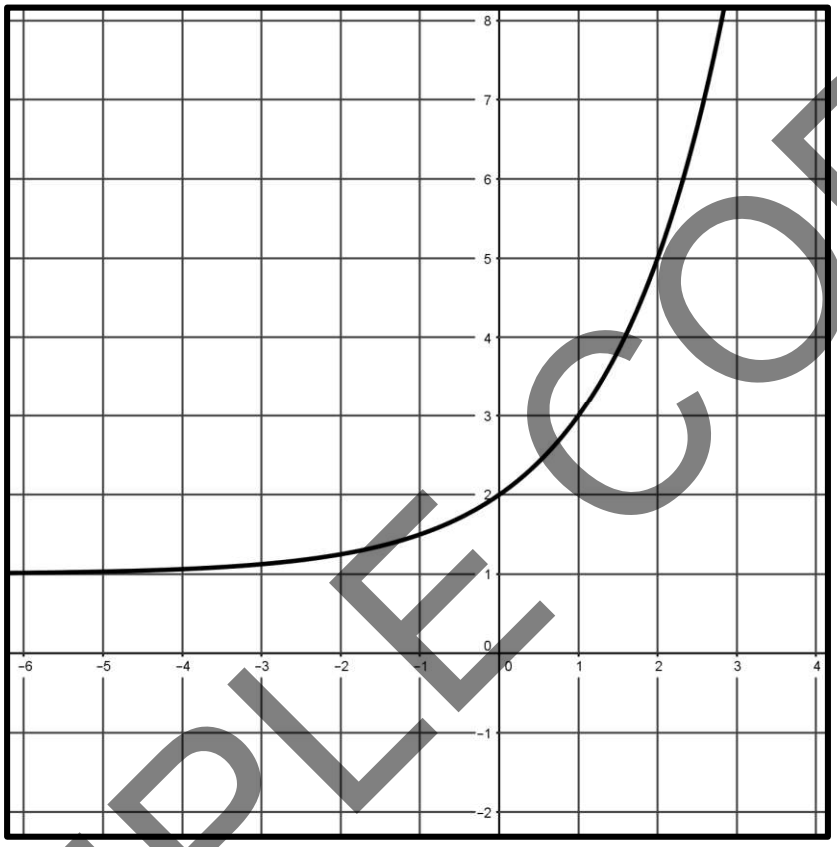


D



3 (A.9A)

The graph of an exponential function is shown on the grid.



Based on the graph, which statement about the function is true?

F The range is the set of all real numbers less than 0.

G The range is the set of all real numbers greater than 1.

H The domain is the set of all real numbers less than 3.

J The domain is the set of all real numbers greater than 2.

Spiral 119

1 (A.9C)

Property was purchased 8 years ago, for $200,000. The property value in the neighborhood has decreased by 6% each year since purchase. Which equation could be used to determine the present value, P, of the property?

A $P = 200{,}000(1-0.06)^8$

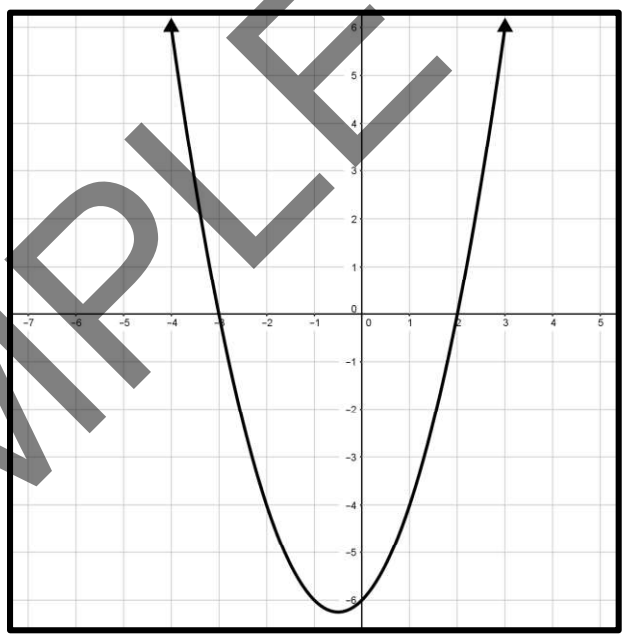
B $A = 2000(1+6)^8$

C $200{,}000 = P(1-0.06)^8$

D $P = 200{,}000(1+0.06)^8$

2 (A.6C)

Which of the following functions has the same roots as the graph below?



F $y = x^2 - 4x$

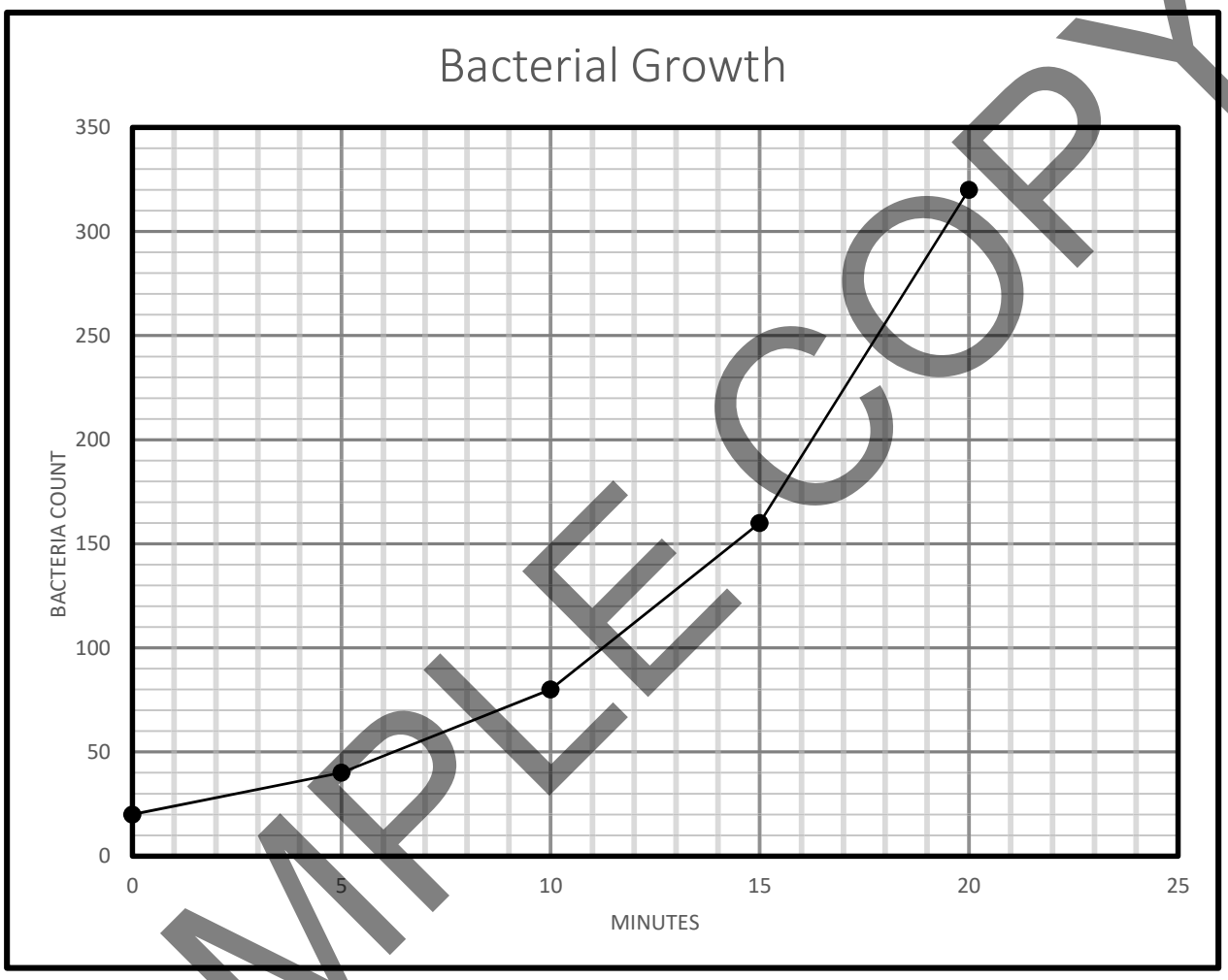
G $y = x^2 - 12x + 36$

H $y = x^2 - 12x + 6$

J $y = 2x^2 + 2x - 12$

3 (A.9D)

A biologist counts the number of bacteria in a culture at five-minute intervals, shown in the graph below.



What conclusion can be drawn from the data represented by the graph?

A The number of bacteria tripled every five minutes.

B The biologist started with 100 bacteria.

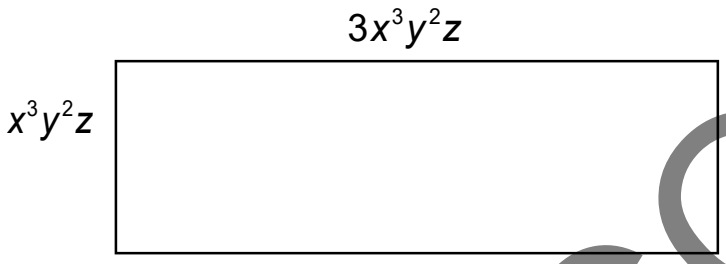
C The number of bacteria doubled every five minutes.

D At 20 minutes the count was greater than 400.

Spiral 120

1 (A.11B)

The length and width of a rectangle are shown below. Which expression is equivalent to the area of the rectangle?



F $3x^3y^2z$

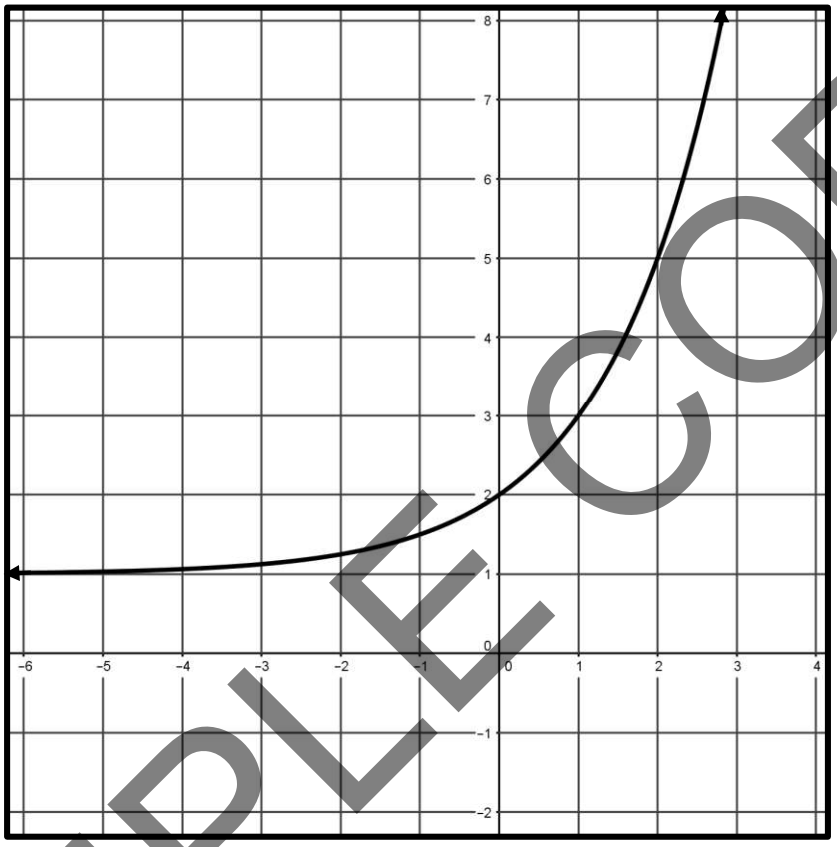
G $3x^6y^4z^2$

H $4x^3y^2z$

J $4x^6y^4z^2$

2 (A.9A)

The graph of an exponential function is shown on the grid.



Based on the graph, which statement about the function is true?

A The range is the set of all real numbers less than 1.

B The domain is the set of all real numbers greater than 1.

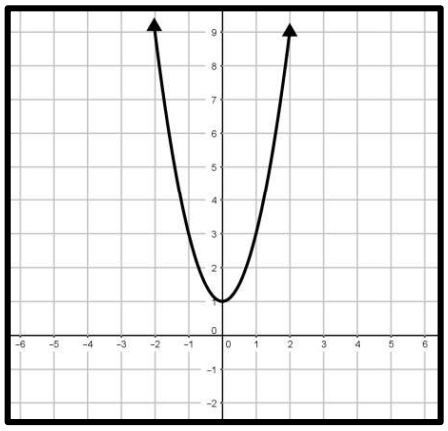
C The domain is the set of all real numbers.

D The range is the set of all real numbers less than 0.

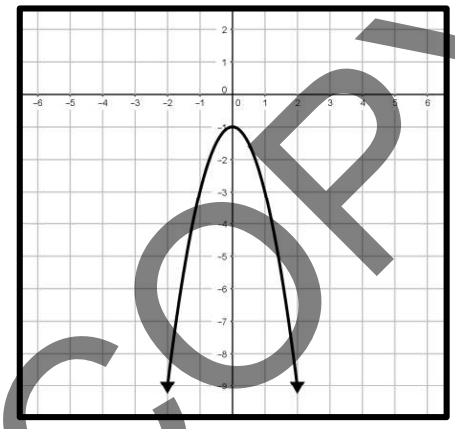
3 (A.7C)

Function f is in the form $y = ax^2 + c$. If the value of a is greater than 0, and the value of c is less than 0, which graph could represent f?

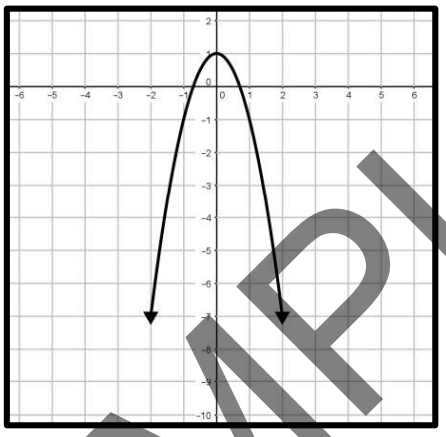
F



G



H



J