

The New Countdown for EOC Algebra I
 Designed to reflect the latest standards, item balance, and rigor of the STAAR!

10 Complete Tests!
 Each series resembles a full-length STAAR (54 problems). Print an entire test on just 5 pages (when printed front-to-back).

Your order of Countdown includes:

- 5 Original Series
- 5 Shadow Series (copies of the first five series with situations, numbers, and answers changed)
- 1 Quick Track
- 1 Standards-At-A-Glance
- 1 Answer Key

Who We Are
 MathWarm-Ups.com is a Texas-based company and approved vendor in more than 800 school districts. Our most popular product, *Countdown to the Math STAAR*, is currently used in thousands of classrooms throughout Texas. Our no-nonsense, straightforward, and affordable approach continues to reach new teachers and their students every year.

Countdown to the STAAR EOC Algebra I™

Each page of the *Countdown* gives your students essential practice in 3 to 8 different standards. Whether it's worked as a daily warm-up or as a homework assignment, by the end of the tenth series your students will have worked 540 exit-level problems!

Algebra I Sample Page:

Countdown to the Math STAAR™ Series 1 / Page 9

1 Using positive integers starting with $x = 1$, which of the following correctly lists the first four terms of the sequence defined by $y = (x + 1)^2$?

A {0, 1, 4, 9} C {4, 9, 16, 25}
 B {2, 9, 16, 25} D {1, 4, 9, 16}

1.A.12.C

2 An overhead view of a zip-line attraction at Family Fun Park is represented as a line on the coordinate grid below.

If a second zip-line is added perpendicular to the original line and it also passes through point Z, what is the equation of this second line?

F $y = \frac{1}{3}x + \frac{20}{3}$ H $y - 6 = 3(x + 2)$
 G $y = -3x$ J $x + 3y = 16$

3.A.2.F

3 The graph of function f in the form of $f(x) = ax^2$ is shown here.

If the value of a is changed to -2 for the above function, which graph represents the new function?

A

C

B

D

4.A.7.C

When to begin Countdown
 The problems on the *Countdown* are exit-level difficulty. We recommend beginning 10 weeks before the test. You can always *double up* when necessary, though.

Maximize Effectiveness!
 Check every page with your students, as a class or individually. Identify problem areas by utilizing the provided *Quick Track* forms. Use *focused problem sets* to provide individualized practice on difficult standards.

The Algebra I EOC is the most rigorous math test your students will encounter this school year, testing them on 33 different *Supporting* standards and 16 different *Readiness* standards.

Your students need rigorous practice and you need to assess their proficiency. *Countdown* provides both in a straightforward and easy-to-implement design.

Implementation Steps
Work 1 or 2 pages a day as homework or in class as a daily warm-up.

Check each page with your students, modeling and discussing effective problem-solving strategies.

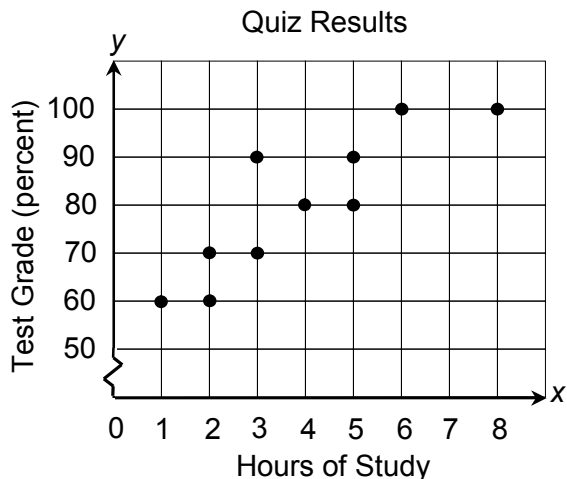
Track progress by using the provided *Quick Track* form (students fill this out themselves in seconds).

No teacher training or computers required!

Countdown is simplicity at its finest. And it works!

MathWarm-Ups.com

1 A teacher asked ten students how many hours each had studied for this week's exam, x , and compared this with resulting grades, y .



Which statement is most correct regarding hours studied and resulting test grade?

- A A weak negative correlation appears to exist between hours studied and grades.
- B A weak positive correlation appears to exist, but greater hours studied is not likely causal to higher grades.
- C A strong positive correlation appears to exist with likely causation between hours studied and higher grades.
- D The variables do not appear to have any correlation or causal relationship.

2.A.4.B

2 For $y = \frac{2}{3}x - 2$, what is the range of this function where the domain is 3 to 12?

- F $0 < x < 12$
- H $2 \leq x \leq 10$
- G $0 < y < 8$
- J $0 \leq y \leq 6$

3.A.2.A

3 If the volume of water in a pond in hundreds of thousands of gallons, $f(x)$, is represented by the exponential function $f(x) = 2(0.99)^x$, where x is the number of weeks in the future, which statement is true regarding the pond?

- A The pond currently has 200,000 gallons of water, but will decrease by 1% per week.
- B The pond currently has 200,000 gallons of water, but will increase by 1% per week.
- C The pond currently has 99,000 gallons of water, but will decrease by 2% per week.
- D The pond currently has 99,000 gallons of water, but will increase by 2% per week.

5.A.9.B

4 For $x^2 + 3x - 18 = (x - 3)(x + a)$, what value of a would make this equation true?

+	•	•	•	•	•	•	•
-	0	0	0	0	0	0	0
	1	1	1	1	1	1	1
	2	2	2	2	2	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4
	5	5	5	5	5	5	5
	6	6	6	6	6	6	6
	7	7	7	7	7	7	7
	8	8	8	8	8	8	8
	9	9	9	9	9	9	9

1.A.10.E

5 Which of the following quadratic equations is equivalent to $y = -3(x - 1)^2 + 4$?

- F $y = -3x^2 + 6x + 1$
- H $y = 9x^2 + 6x + 5$
- G $y = 3x^2 - 6x + 7$
- J $y = -3x^2 + 5$

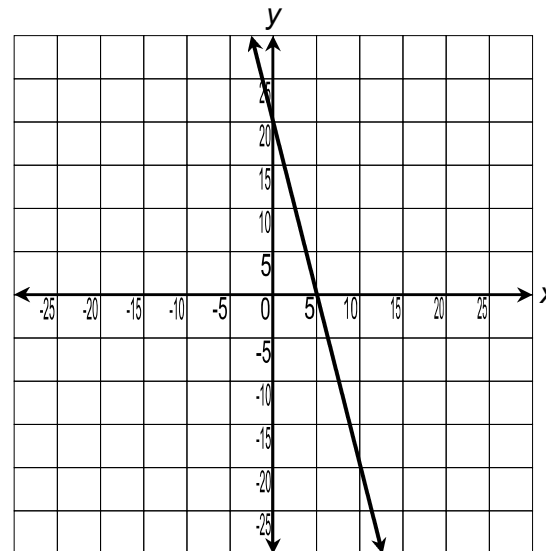
4.A.6.B

6 A fish bait shop must sell more than \$160 of bait each day they are open to be profitable that day. They charge \$8 for a container of worms and \$5 for a container of salmon eggs. If w represents the number of containers of worms sold and e represents the number of containers of salmon eggs sold, which inequality could be used to find combinations of each that result in a profitable day?

- A $5w + 8e < 160$
- B $5w + 8e \geq 160$
- C $8w + 5e \leq 160$
- D $8w + 5e > 160$

3.A.2.H

7 The graph of $4x + y = 20$ is shown below.

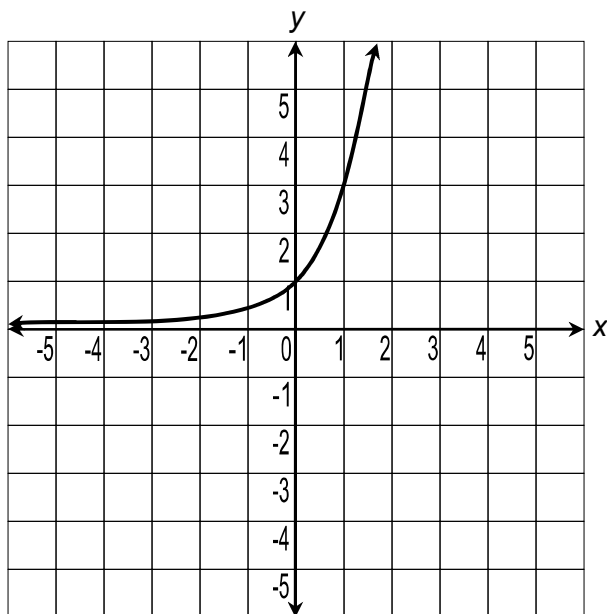


Which of the following ordered pairs is in the solution set of $4x + y < 20$?

- F (20, 0)
- H (0, 20)
- G (0, 5)
- J (5, 0)

2.A.3.D

1 An exponential function is graphed below.



What is the domain of the function?

- A $x < 2$
- B $y > 0$
- C all real numbers
- D $y \geq 1$

5.A.9.A

2 What is the solution to the following system of linear equations?

$$6x - y = -10$$

$$y = \frac{-14x - 2}{3}$$

- F $(0, 0)$
- G $(-1, 4)$
- H $(0, \frac{2}{3})$
- J $(-7, 32)$

3.A.5.C

3 What is the range of the function

$$y = 2(x + 1)^2 + 3$$

- A $x < -1$
- B $y > 6$
- C all real numbers
- D $y \geq 3$

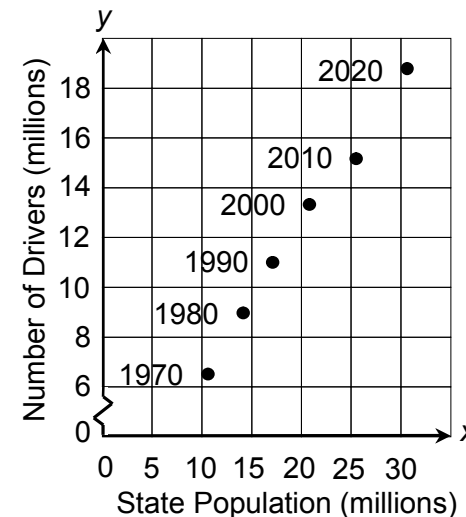
4.A.6.A

4 What expression is equivalent to $(4x^3)(3x^2y)$?

- F $12x^5y$
- G $\frac{4x}{3y}$
- H $12x^6y$
- J $\frac{3y}{4x}$

1.A.11.B

5 The graph shows the approximate total population of Texas, x , and the approximate total number of licensed drivers in Texas, y , for a given year. Data for 2020 is estimated.

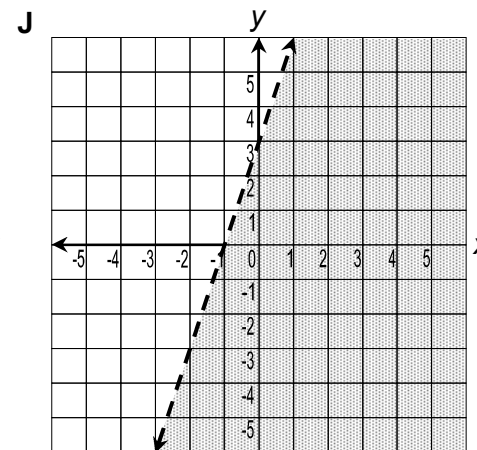
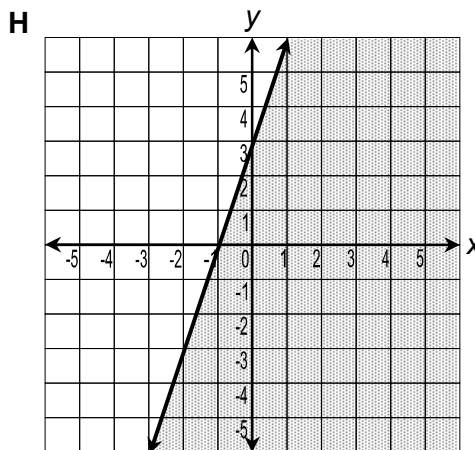
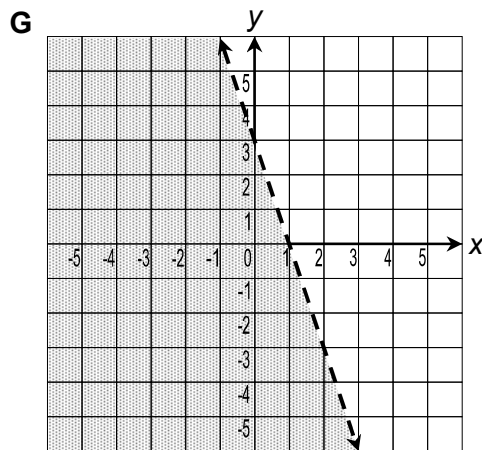
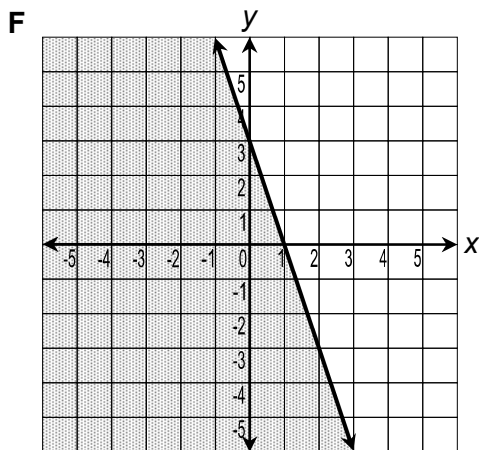


Which function best models the data from years 1980 through year 2000?

- A $y = -1.2x + 25.8$
- B $y = 4x - 47$
- C $y = 0.65x$
- D $y = 0.3x + 5$

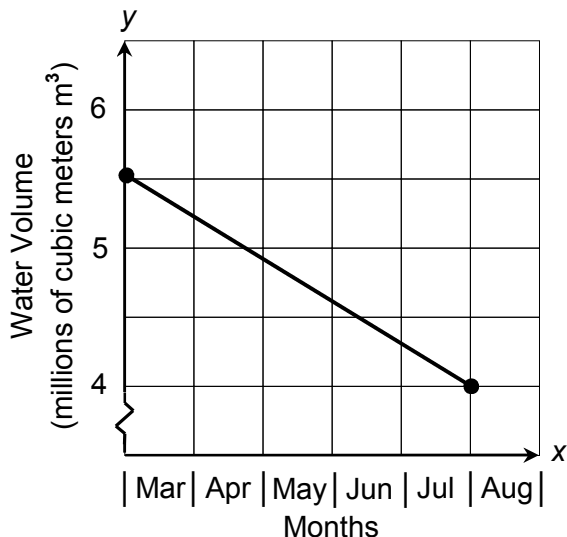
2.A.4.C

6 Which graph represents the solution set for $p(x) < -3x + 3$?



2.A.3.D

1 The volume of water in a reservoir has decreased at a constant rate as shown below.

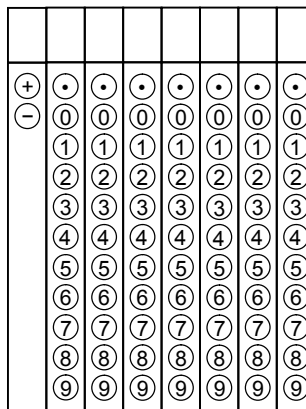


What is the monthly rate of change observed March through July?

- A - 1.5 million m³
- B - 1.0 million m³
- C - 0.5 million m³
- D - 0.3 million m³

2.A.3.B

2 A triangle shaped table top with an area of 324 square inches has a base of $8x + 4$ inches and a height of $4x + 2$ inches. Given the area of a triangle is half of its base times height, what is a reasonable value of x in this situation?



4.A.8.A

3 A sphere has a radius of $5a^4b^7$ in. What is the sphere's surface area in square inches, S , given $S = 4\pi r^2$?

- F $20\pi a^6b^9$
- G $100\pi a^6b^9$
- H $20\pi a^8b^{14}$
- J $100\pi a^8b^{14}$

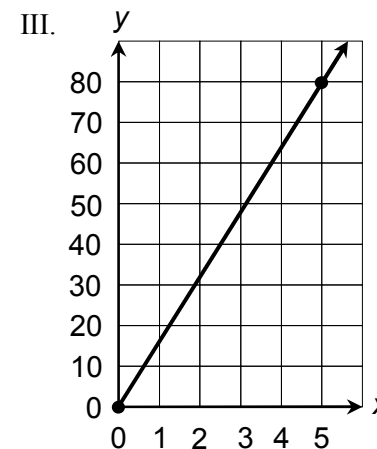
1.A.11.B

4 Which of the following could represent points on a line defined by the equation $y = \frac{1}{16}x$?

- I. A plant fertilizer is mixed with water at a rate of 8 ounces of fertilizer, y , per 128 ounces of water, x .

II.

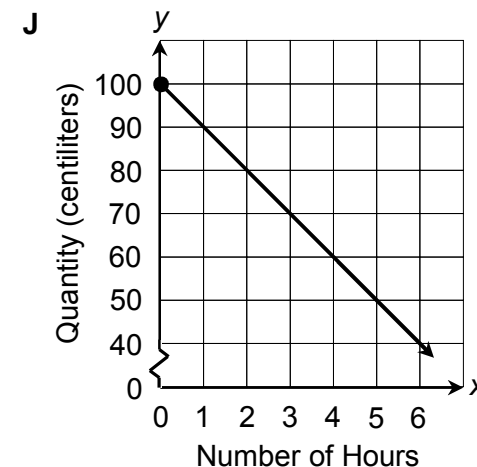
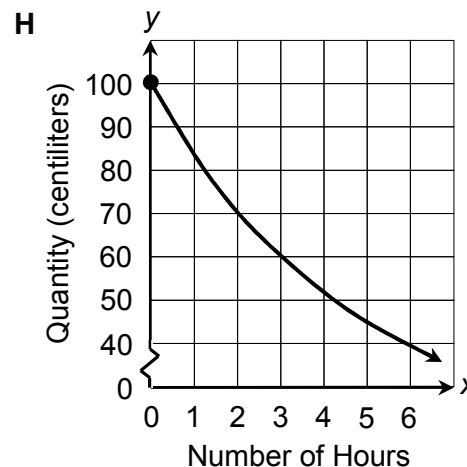
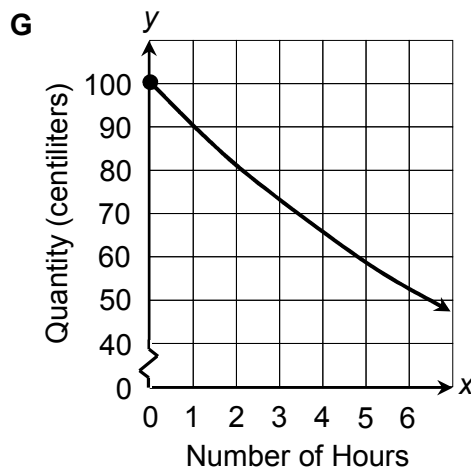
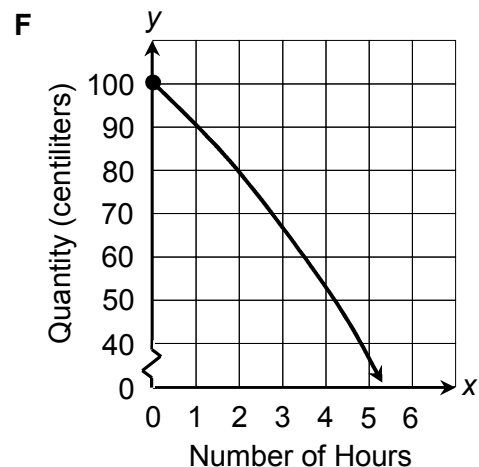
x	-40	8	20	64
y	-2.5	0.5	1.25	4



- A I and II only
- B I and III only
- C II and III only
- D I, II, and III

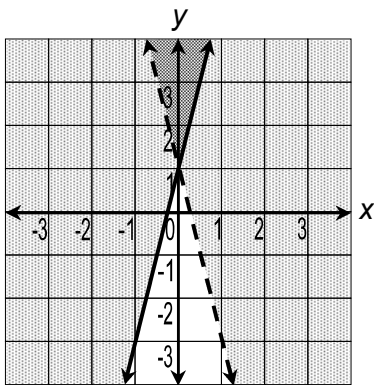
3.A.2.C

5 A container starts with 100 centiliters of liquid in it. If the quantity of liquid decreases 10% per hour when heated, which graph models the situation?



5.A.9.D

1 A system of linear inequalities is shown here.

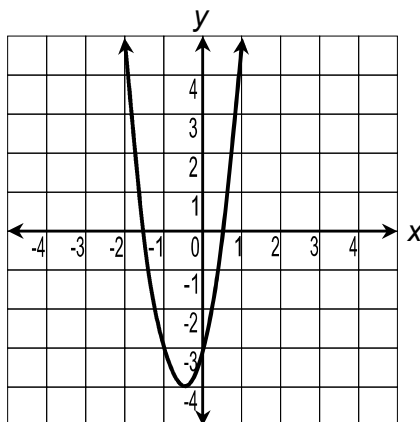


Which inequalities represent the graph?

- A** $y > 4x + 1$ **C** $4y < x + 4$
 $x + 4y \geq 1$ $y \leq -4x + 1$
B $y \geq 4x + 1$ **D** $4y \leq x + 4$
 $4x + y > 1$ $y < -4x + 1$

2.A.3.H

2 What are the zeros of $g(x) = 4x^2 + 4x - 3$?



- F** -4 **H** -3
G $-\frac{2}{3}$ and $\frac{1}{3}$ **J** $-\frac{3}{2}$ and $\frac{1}{2}$

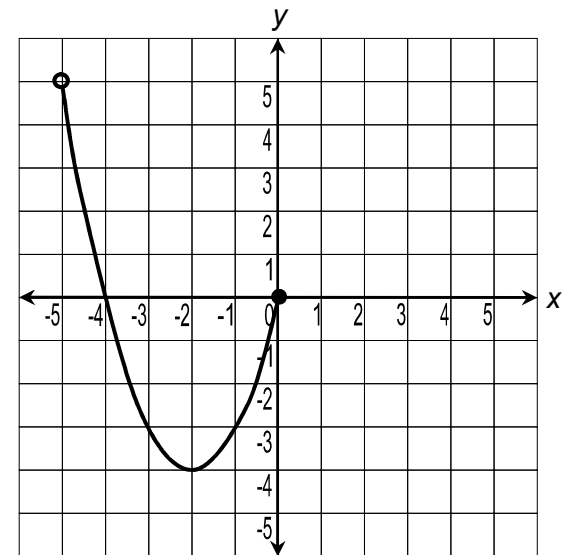
4.A.7.A

3 A cell phone manufacturing company shipped two different sized phones to a store. The shipment had 11 boxes filled with only small phones and 14 boxes filled with only large phones. The total number of small phones in the shipment was 24 more than the total number of large phones in the shipment. Each box of large phones had 6 fewer phones in it than a box of small phones. What system of equations can determine s , the number of small phones in each box, and l , the number of large phones in each box?

- A** $l = s - 6$ **C** $l = s + 6$
 $14l = 11s - 24$ $14l = 11s + 24$
B $s = l - 6$ **D** $s = l + 6$
 $11l = 14s + 24$ $11l = 14s - 24$

3.A.2.I

6 What is the domain of the graphed quadratic function segment below?



- F** $-4 < x \leq 0$ **H** $-5 < x \leq 0$
G $-4 \leq y < 5$ **J** $0 < y < 5$

4.A.6.A

4 Which of the linear equations below is equivalent to $y = -\frac{5}{3}x + 2$?

- F** $3x + 5y = 10$ **H** $5x - 3y = -10$
G $5x + 3y = 6$ **J** $5x - 3y = -6$

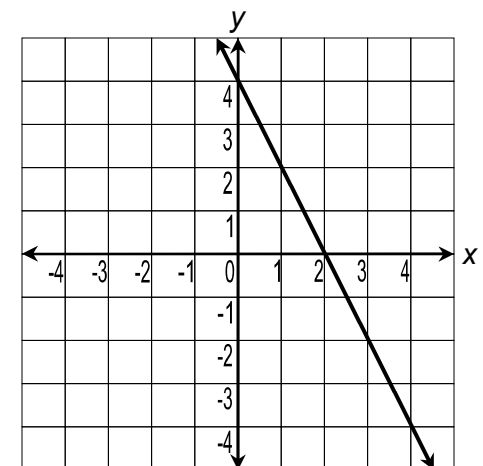
1.A.12.E

5 Which equation for a line passes through point $(-2, 4)$ and has a slope of 0?

- A** $x = -2$ **C** $x = 4$
B $y = -2$ **D** $y = 4$

3.A.2.B

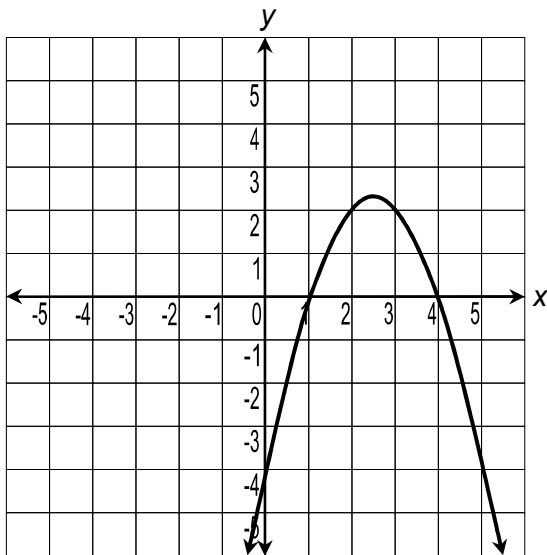
7 Which ordered pair is a zero of the graphed linear function?



- A** $(0, 2)$ **B** $(2, 0)$ **C** $(0, 4)$ **D** $(0, 0)$

2.A.3.C

1 What quadratic function is graphed below with zeros at $x = 1$ and $x = 4$?



- A $y = x^2 - 2.5x + 4$ C $y = -x^2 + 2.5x - 4$
 B $y = x^2 - 5x + 4$ D $y = -x^2 + 5x - 4$

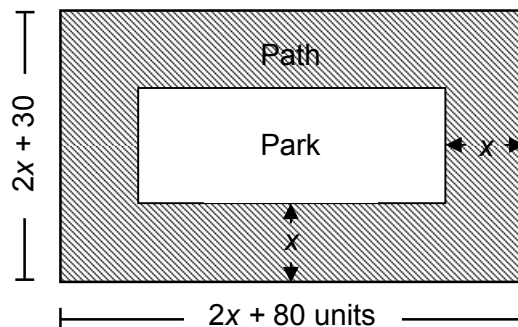
4.A.6.C

2 A marketing company sent emails to their existing 100 customers asking them for sales leads of people they know. If their total number of customers, y , then increased exponentially by 5% each month, x , compared to the previous month, which equation best models the situation?

- F $y = 100 + 5x$
 G $y = 100(1.05)^x$
 H $y = 1.05x + 100$
 J $y = 100(0.95)^x$

5.A.9.C

3 An existing park is rectangular with a length of 80m and a width of 30m. A new path of uniform width x is planned to surround the park.

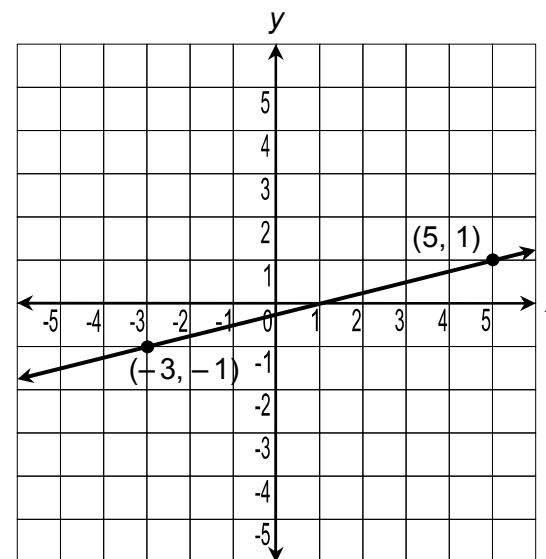


If the total combined length of the park and new path is described by the expression $2x + 80$ and the total width is $2x + 30$, which expression represents the total area of the park and path?

- A $2(x^2 + 110x + 1200)$
 B $2(x^2 + 1200)$
 C $4(x^2 + 55x + 600)$
 D $4(x^2 + 600)$

1.A.10.D

5 A linear function is graphed below.

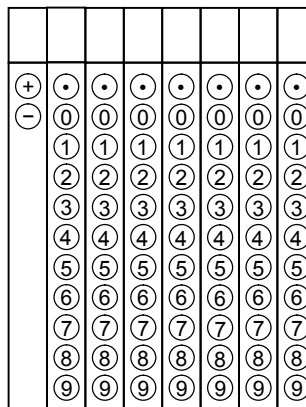


What coordinate pair represents the y -intercept?

- F $(0, -\frac{1}{4})$ H $(0, -\frac{1}{2})$
 G $(0, 1)$ J $(1, 0)$

2.A.3.C

4 What is the rate of change in y with respect to x in the function $x + 5y = 10$?



2.A.3.B

6 A grocery cart has x pounds of food in it. Frozen foods are 20 of those pounds. One-third of the remaining pounds are fresh fruit. Which function can determine the pounds of fresh fruit?

- A $f(x) = 20 + \frac{1}{3}x$ C $f(x) = 20 - \frac{1}{3}x$
 B $f(x) = \frac{x + 20}{3}$ D $f(x) = \frac{x - 20}{3}$

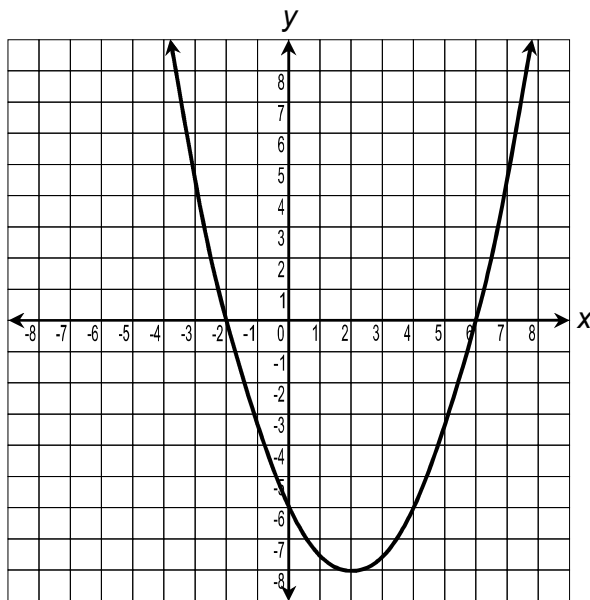
3.A.2.C

7 If trinomial $x^2 - 3x - 28$ represents the area of a parallelogram and expression $x - 7$ represents its height, what represents the base?

- F $2(x + 2)$ H $x + 4$
 G $x - 14$ J none of these

1.A.10.E

1 The graph of quadratic function h is shown below. The vertex, y -intercept, and x -intercept coordinate values are all integers.



What is the minimum value of function h ?

- A -2 B -6 C -8 D 6

4.A.7.A

2 Which slope-intercept linear equation is parallel to the graph of $y = -2x + 5$ and passes through point $(\frac{1}{2}, -2)$?

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

G $y = -2x - 1$

H $y = -\frac{1}{2}x - 1\frac{3}{4}$

J $y = 2x - 3$

3.A.2.E

3 The Space Surveillance Network tracks low Earth orbit satellites. If they tracked four of them and made the following tables comparing the distance each travelled in kilometers, y , for a given period of time in seconds, x , which of them is moving at the slowest rate in kilometers per second?

A Satellite A

x	y
5	39
15	117
25	195
50	390

C Satellite C

x	y
2	15.8
6	47.4
20	158
30	237

B Satellite B

x	y
3	24.3
7	56.7
11	89.1
20	162

D Satellite D

x	y
4	32
8	64
12	96
16	128

2.A.3.B

4 Which expression is equal to $\frac{15w^{-3}x^5y^2}{6w^{-2}x^{-2}y}$?

- F $\frac{5x^7y}{2w}$ G $\frac{3x^3y^3}{2w^{-5}}$ H $\frac{5wx^3}{2y^3}$ J $\frac{2w^{-5}}{5x^3y^3}$

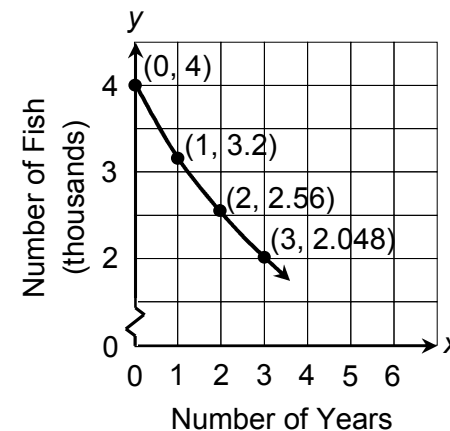
1.A.11.B

5 A cashier put all quarters and dimes received during a shift into an automated money counter. The counter said there were 180 total coins worth \$22.50. How many quarters were there?

- A 15 B 30 C 90 D 150

3.A.5.C

6 A population of fish, y , is forecast to decrease exponentially each year in the future, x , as shown by the data points graphed below.



Which statement is not true of the situation?

- F The initial population was 4,000 fish.
 G The initial population will be decreased to less than half by year 4.
 H The population is decreasing 800 each year.
 J The population is decreasing by 20 percent each year.

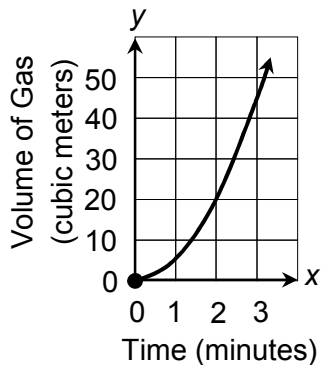
5.A.9.D

7 There were four school spirit assemblies last year. The number of teachers, y , needed to supervise each assembly is dependent upon the number of students attending, x . The solution set for the function describing the situation consists of the ordered pairs $(231, 9)$, $(182, 7)$, $(214, 8)$, and $(252, 10)$. What is the domain of the situation?

- A $\{7, 8, 9, 10\}$ C $7 \leq y \leq 10$
 B $\{182, 214, 231, 252\}$ D $182 \leq x \leq 252$

3.A.2.A

1 A scientist found that a gas under certain conditions expands according to a quadratic function. Data points for the volume of gas after x minutes of expansion are shown below.



x	0	1	2	3
y	0	5	20	45

Based on this information, what is the closest estimate for the function value, y , when $x = 4$?

- A 65 B 80 C 90 D 105

4.A.8.B

2 The weight of a load of road gravel in pounds, y , varies directly with the volume of gravel in cubic yards, x . Based on the information in the table, how much would 8 cubic yards of gravel weigh?

x	1.5	3.5	6	8
y	4,275	9,975	17,100	?

+	•	•	•	•	•	•	•
-	0	0	0	0	0	0	0
	1	1	1	1	1	1	1
	2	2	2	2	2	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4
	5	5	5	5	5	5	5
	6	6	6	6	6	6	6
	7	7	7	7	7	7	7
	8	8	8	8	8	8	8
	9	9	9	9	9	9	9

3.A.2.D

3 Which of the following statements regarding function $g(x) = 3x^2 + 2x - 1$ is correct?

- F Since $g(x) = (3x + 1)(x + 1)$, the zeros of the function are $x = -1$ and $x = -\frac{1}{3}$.
- G Since $g(x) = (3x + 1)(x - 1)$, the zeros of the function are $x = -\frac{1}{3}$ and $x = 1$.
- H Since $g(x) = (3x - 1)(x - 1)$, the zeros of the function are $x = \frac{1}{3}$ and $x = 1$.
- J Since $g(x) = (3x - 1)(x + 1)$, the zeros of the function are $x = -1$ and $x = \frac{1}{3}$.

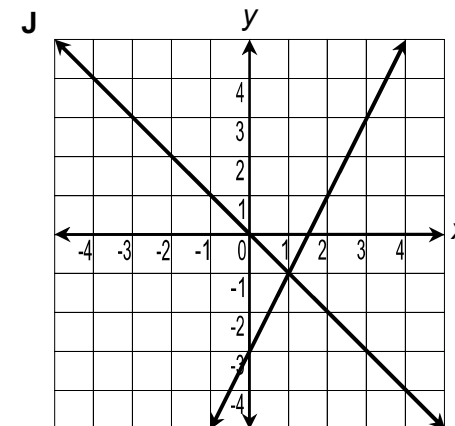
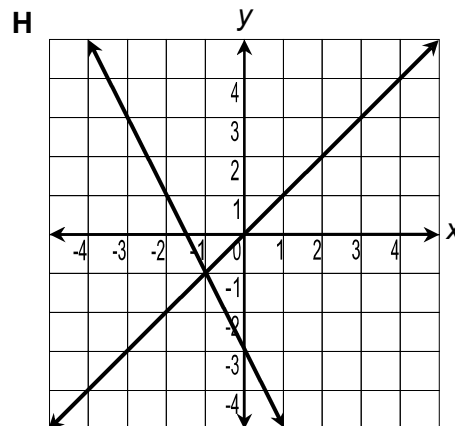
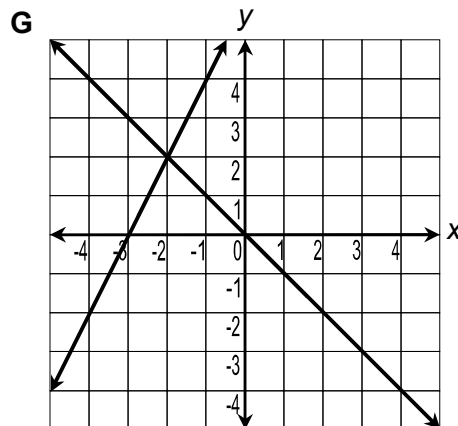
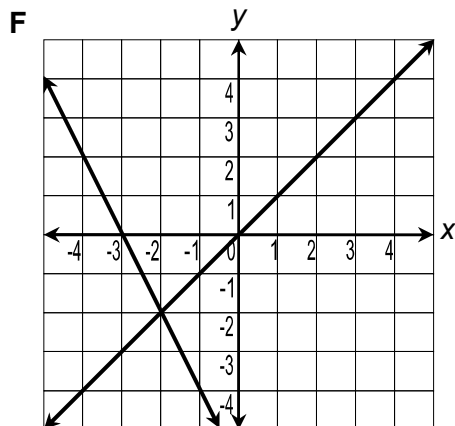
4.A.7.B

4 Which of the following expressions is equivalent to $x^2 + 2x - 15$?

- A $(x + 2)(x - 7.5)$ C $(x - 3)(x + 5)$
 B $(x + 3)(x - 5)$ D none of these

1.A.10.E

5 Which graph can determine the solution for the system of linear equations $-2x + y = -3$ and $-3y = 3x$?



2.A.3.F

1 What are the solutions to the equation $(x - 3)^2 = 7$?

- A** $x = 3 \pm \sqrt{7}$ **C** $x = 3 \pm \sqrt{28}$
B $x = -1$ and $x = 7$ **D** no solution

4.A.8.A

3 Simplify $-3(3x^2 + 2y - 5) - 2(x^2 - 3x)$

- A** $-11x^2 - 3x + 2y - 5$
B $-11x^2 + 6x - 6y + 15$
C $-11x^2 - 6xy + 15$
D $-11x^2 + 15$

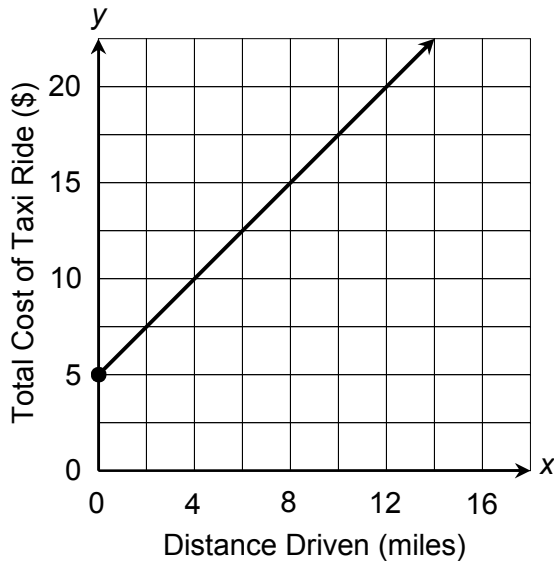
1.A.10.A

6 A rectangular shelf with an area equal to $x^2 - 16x + 60$ square units could have which possible dimensions for length and width?

- A** $(x - 8)$ and $(x + 2)$ **C** $(x + 5)$ and $(x + 12)$
B $(x - 4)$ and $(x - 15)$ **D** $(x - 10)$ and $(x - 6)$

1.A.10.E

2 A taxi company charges a minimum pickup fee plus a constant rate per mile driven. The relationship between total cost of a taxi ride and distance driven is graphed below.



Which statement is true regarding the situation?

- F** The slope of the line is $1\frac{1}{4}$ so the constant cost rate per mile is \$1.25.
G The x-intercept is -4 so the first 4 miles driven are free.
H It costs \$20 to go 12 miles so it will cost \$40 to go 24 miles.
J The y-intercept of the line is 5 so the constant rate cost per mile is \$5.00.

2.A.3.C

4 What value of x would make the equation below true?

$$-1.5(2x - 8) = 0.8(10 - 5x)$$

+	•	•	•	•	•	•	•
-	0	0	0	0	0	0	0
	1	1	1	1	1	1	1
	2	2	2	2	2	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4
	5	5	5	5	5	5	5
	6	6	6	6	6	6	6
	7	7	7	7	7	7	7
	8	8	8	8	8	8	8
	9	9	9	9	9	9	9

3.A.5.A

5 Some values from the graph of an exponential function are shown in the table.

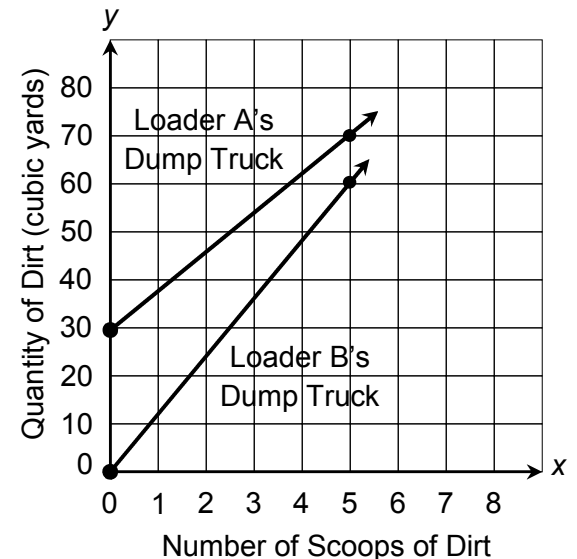
x	0	1	2	3
y	0.5	1.5	4.5	13.5

Which of these functions has the same relationship as the table values?

- F** $h(x) = 3(4.5)^x$ **H** $h(x) = 0.5(3)^x$
G $h(x) = 1.5(9)^x$ **J** $h(x) = (1.5)^x$

5.A.9.C

7 Two different sized front-end loaders working at a mine are each filling their own dump truck with dirt. One of the dump trucks already had some dirt in it when it pulled up to Loader A for more dirt. The graph shows the total amount of dirt in cubic yards in each dump truck, y , after x number of scoops of dirt from its loader.



Which system of equations can determine how many scoops will be needed for the quantity of dirt in both dump trucks to be the same?

- F** $y = 12x + 30$ **H** $y = 12x - 80$
 $y = 8x$ $y = 8x$
G $y = 8x + 30$ **J** $y = 8x - 30$
 $y = 12x$ $y = 12x$

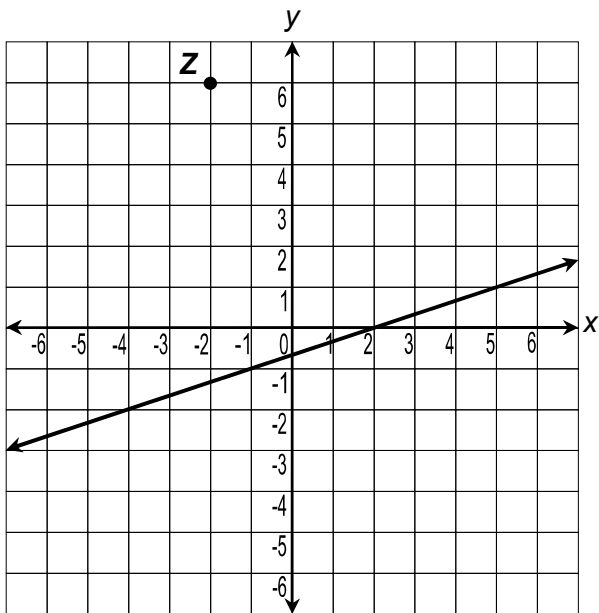
3.A.2.I

1 Using positive integers starting with $x = 1$, which of the following correctly lists the first four terms of the sequence defined by $y = (x + 1)^2$?

- A {0, 1, 4, 9} C {4, 9, 16, 25}
 B {2, 9, 16, 25} D {1, 4, 9, 16}

1.A.12.C

2 An overhead view of a zip-line attraction at Family Fun Park is represented as a line on the coordinate grid below.

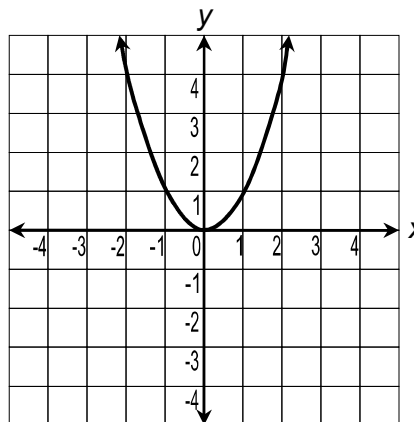


If a second zip-line is added perpendicular to the original line and it also passes through point Z, what is the equation of this second line?

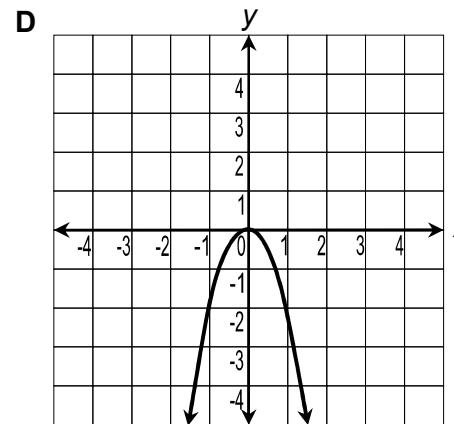
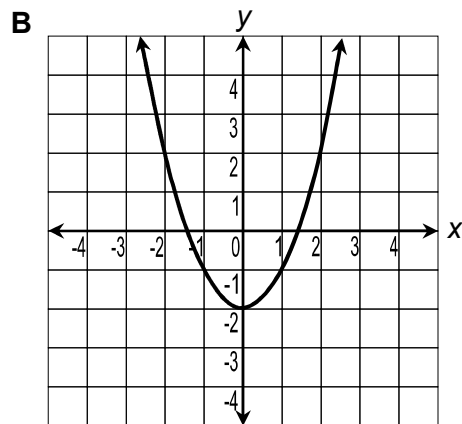
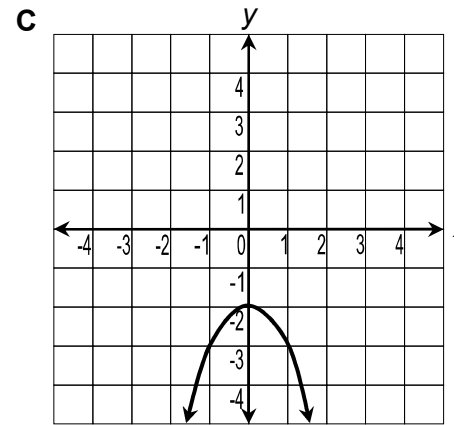
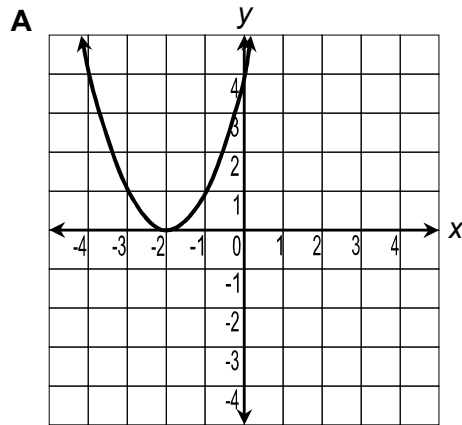
- F $y = \frac{1}{3}x + \frac{20}{3}$
 G $y = -3x$
 H $y - 6 = 3(x + 2)$
 J $x + 3y = 16$

3.A.2.F

3 The graph of function f in the form of $f(x) = ax^2$ is shown here.



If the value of a is changed to -2 for the above function, which graph represents the new function?



4.A.7.C