STAR Test Sample Questions

Algebra I (End-of-course)

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More Questions

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STAR Test Sample Questions

Algebra I (End-of-course)

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Standardized Testing and Reporting - STAR

Algebra I (End-of-course)

Functions and Rational Expressions (Performance Level: Advanced) – Question 01

What is $\frac{x^2-4xy+4y^2}{3xy-6y^2}$ reduced to lowest terms?

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

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

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

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

Algebra I (End-of-course)

Functions and Rational Expressions (Performance Level: Advanced) – Question 02

Simplify $\dfrac{6x^2+21x+9}{4x^2-1}$ **to lowest terms.**

A $\dfrac{3(x+1)}{2x-1}$

B $\dfrac{3(x+3)}{2x-1}$

C $\dfrac{3(2x+3)}{4(x-1)}$

D $\dfrac{3(x+3)}{2x+1}$

Algebra I (End-of-course)

Functions and Rational Expressions (Performance Level: Advanced) – Question 03

What is $\frac{x^2-4x+4}{x^2-3x+2}$ reduced to lowest terms?

A $\frac{x-2}{x-1}$

B $\frac{x-2}{x+1}$

C $\frac{x+2}{x-1}$

D $\frac{x+2}{x+1}$

Algebra I (End-of-course)

Functions and Rational Expressions (Performance Level: Advanced) – Question 04

$$\frac{7z^2+7z}{4z+8}\cdot\frac{z^2-4}{z^3+2z^2+z}=$$

A $\dfrac{7(z-2)}{4(z+1)}$

B $\dfrac{7(z+2)}{4(z-1)}$

C $\dfrac{7z(z+1)}{4(z+2)}$

D $\dfrac{7z(z-1)}{4(z+2)}$

Algebra I (End-of-course)

Functions and Rational Expressions (Performance Level: Advanced) – Question 05

Which fraction equals the product

$$\left(\frac{x+5}{3x+2}\right)\left(\frac{2x-3}{x-5}\right)?$$

A $\dfrac{2x-3}{3x+2}$

B $\dfrac{3x+2}{4x-3}$

C $\dfrac{x^2-25}{6x^2-5x-6}$

D $\dfrac{2x^2+7x-15}{3x^2-13x-10}$

Algebra I (End-of-course)

Functions and Rational Expressions (Performance Level: Advanced) – Question 06

$$\frac{x^2+8x+16}{x+3} \div \frac{2x+8}{x^2-9} =$$

A $\dfrac{2(x+4)^2}{(x-3)(x+3)^2}$

B $\dfrac{2(x+3)(x-3)}{x+4}$

C $\dfrac{(x+4)(x-3)}{2}$

D $\dfrac{(x+4)(x-3)^2}{2(x+3)}$

Algebra I (End-of-course)

Functions and Rational Expressions (Performance Level: Advanced) – Question 07

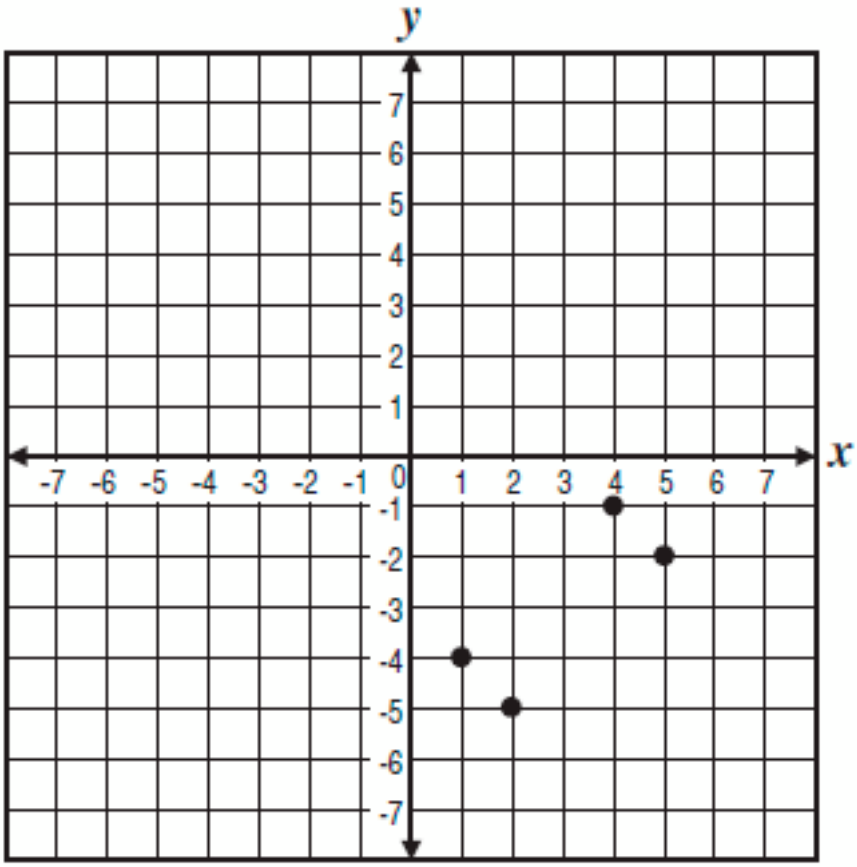
Which relation is a function?

A {(–1, 3), (–2, 6), (0, 0), (–2, –2)}
B {(–2, –2), (0, 0), (1, 1), (2, 2)}
C {(4, 0), (4, 1), (4, 2), (4, 3)}
D {(7, 4), (8, 8), (10, 8), (10, 10)}

Algebra I (End-of-course)

Functions and Rational Expressions (Performance Level: Advanced) – Question 08

What is the domain of the function shown on the graph below?



A $\{-1,-2,-3,-4\}$

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

C {1, 2, 3, 4}
D {1, 2, 4, 5}

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Algebra I (End-of-course)

Functions and Rational Expressions (Performance Level: Proficient) – Question 01

Andy's average driving speed for a 4-hour trip was 45 miles per hour. During the first 3 hours he drove 40 miles per hour. What was his average speed for the last hour of his trip?

A 50 miles per hour
B 60 miles per hour
C 65 miles per hour
D 70 miles per hour

Algebra I (End-of-course)

Functions and Rational Expressions (Performance Level: Proficient) – Question 02

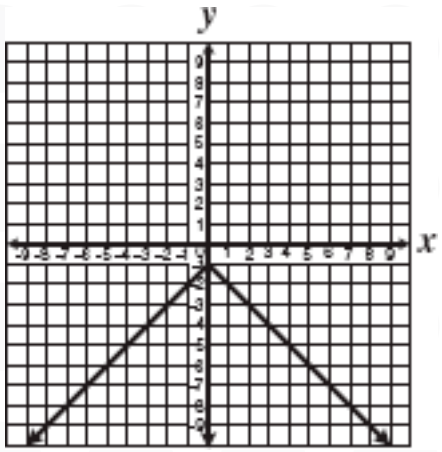
Two airplanes left the same airport traveling in opposite directions. If one airplane averages 400 miles per hour and the other airplane averages 250 miles per hour, in how many hours will the distance between the two planes be 1625 miles?

A 2.5
B 4
C 5
D 10.8

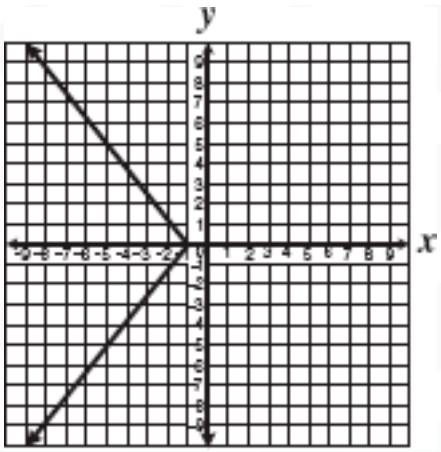
Algebra I (End-of-course)

Functions and Rational Expressions (Performance Level: Basic) – Question 01

For which equation graphed below are all the y-values negative?



A



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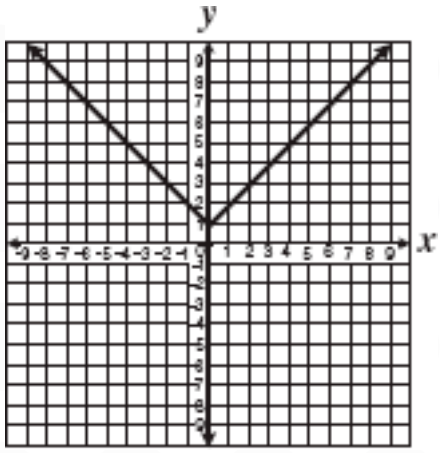

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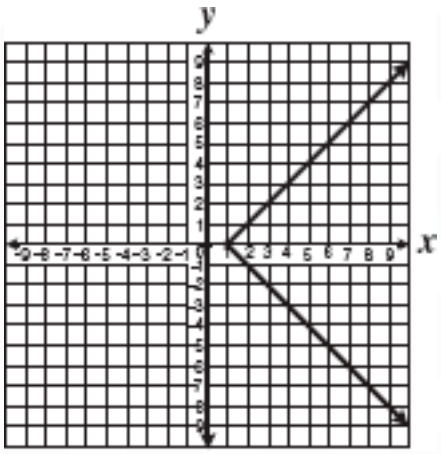
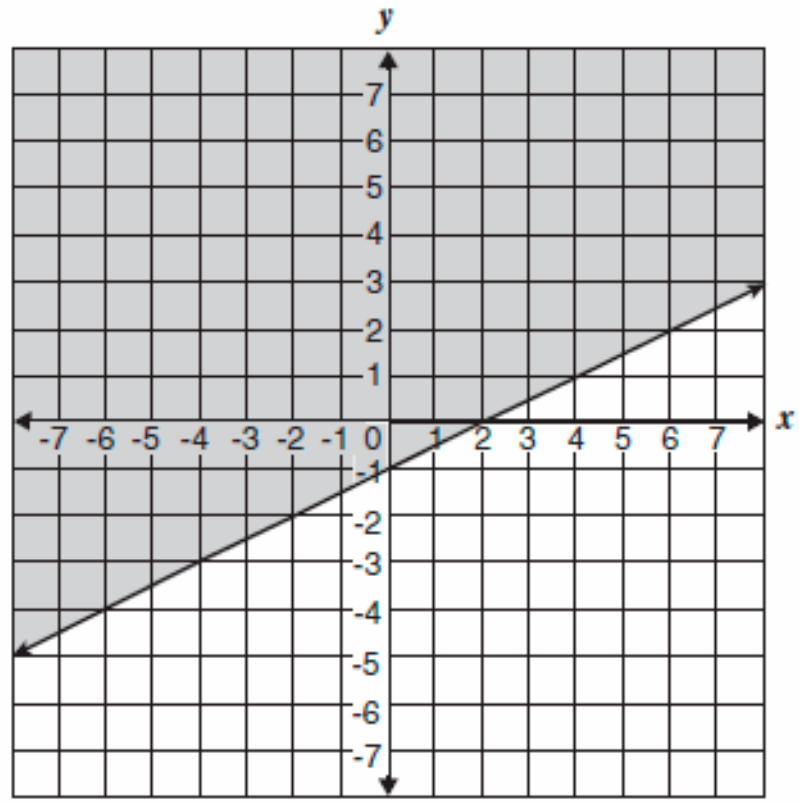


D

Algebra I (End-of-course)

Graphing and Systems of Linear Equations (Performance Level: Advanced) – Question 01

Which inequality is shown on the graph below?



A $y < \frac{1}{2}x - 1$

B $y \leq \frac{1}{2}x - 1$

C $y > \frac{1}{2}x - 1$

D $y \geq \frac{1}{2}x - 1$

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Algebra I (End-of-course)

Graphing and Systems of Linear Equations (Performance Level: Advanced) – Question 02

Which point lies on the line defined by

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

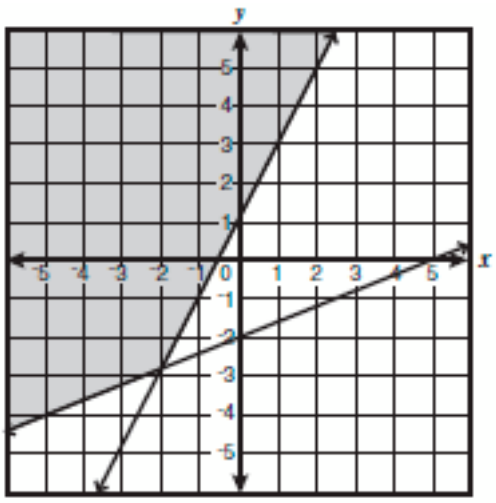
A (0, 2)
B (0, 6)
C $\left(1, -\frac{1}{6}\right)$
D $\left(1, -\frac{1}{3}\right)$

Algebra I (End-of-course)

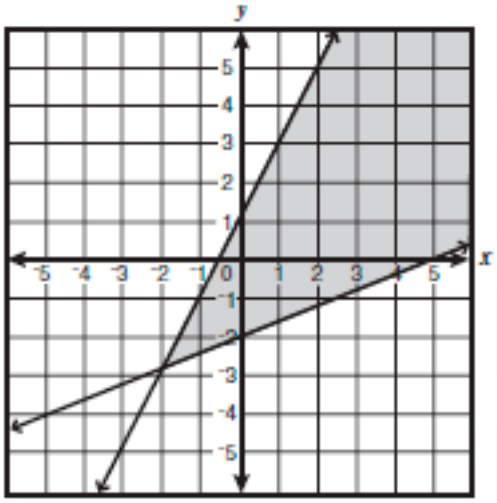
Graphing and Systems of Linear Equations (Performance Level: Advanced) – Question 03

Which graph best represents the solution to this system of inequalities?

$$\begin{cases} 2x \geq y - 1 \\ 2x - 5y \leq 10 \end{cases}$$



A



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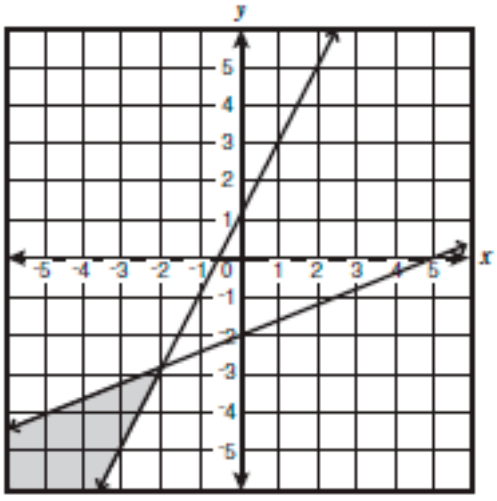
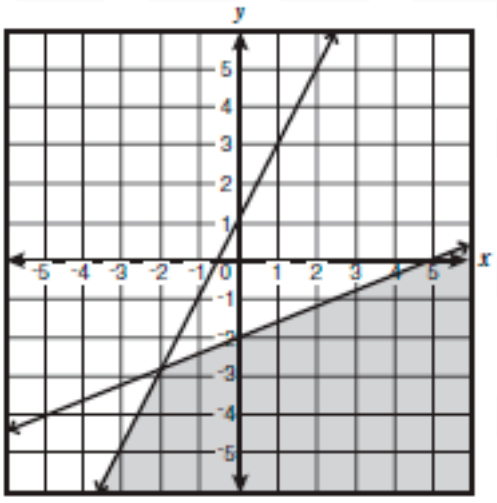


B



D

Algebra I (End-of-course)

Graphing and Systems of Linear Equations (Performance Level: Proficient) – Question 01

The data in the table show the cost of renting a bicycle by the hour, including a deposit.

Renting a Bicycle

Hours *(h)*	Cost in dollars *(c)*
2	15
5	30
8	45

If hours, h, were graphed on the horizontal axis and cost, c, were graphed on the vertical axis, what would be the equation of a line that fits the data?

A $c = 5h$

B $c = \frac{1}{5}h + 5$

C $c = 5h + 5$

D $c = 5h - 5$

Algebra I (End-of-course)

Graphing and Systems of Linear Equations (Performance Level: Proficient) – Question 02

What is the equation of the line that has a slope of 4 and passes through the point (3, −10)?

A $y = 4x - 22$

B $y = 4x + 22$

C $y = 4x - 43$

D $y = 4x + 43$

Algebra I (End-of-course)

Graphing and Systems of Linear Equations (Performance Level: Proficient) – Question 03

The equation of line l $6x + 5y = 3,$ is and the equation of line q is $5x - 6y = 0.$ Which statement about the two lines is true?

A Lines *l* and *q* have the same y-intercept.
B Lines *l* and *q* are parallel.
C Lines *l* and *q* have the same x-intercept.
D Lines *l* and *q* are perpendicular.

Algebra I (End-of-course)

Graphing and Systems of Linear Equations (Performance Level: Proficient) – Question 04

Which equation represents a line that is

parallel to $y = -\frac{5}{4}x + 2$**?**

A $y = -\frac{5}{4}x + 1$

B $y = -\frac{4}{5}x + 2$

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

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

Algebra I (End-of-course)

Graphing and Systems of Linear Equations (Performance Level: Proficient) – Question 05

Which ordered pair is the solution to the system of equations below?

$$\begin{cases} x+3y=7 \\ x+2y=10 \end{cases}$$

A $\left(\frac{7}{2},\frac{13}{4}\right)$

B $\left(\frac{7}{2},\frac{17}{5}\right)$

C (–2, 3)

D (16, –3)

Algebra I (End-of-course)

Graphing and Systems of Linear Equations (Performance Level: Proficient) – Question 06

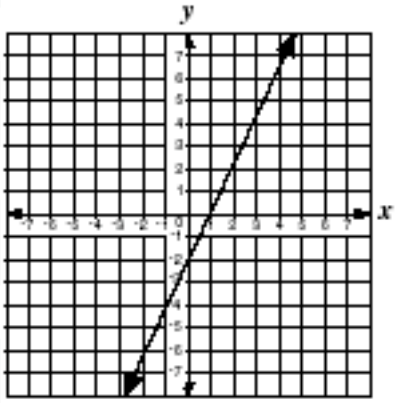
Marcy has a total of 100 dimes and quarters. If the total value of the coins is $14.05, how many quarters does she have?

A 27
B 40
C 56
D 73

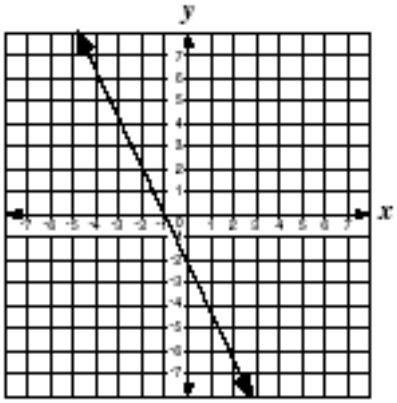
Algebra I (End-of-course)

Graphing and Systems of Linear Equations (Performance Level: Basic) – Question 01

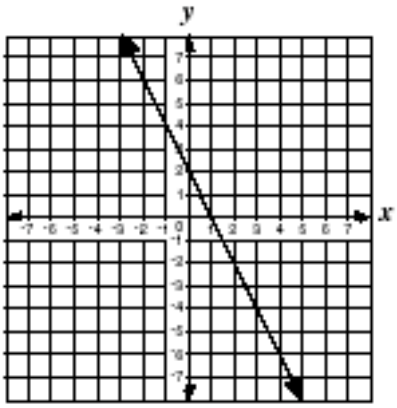
Which best represents the graph of $y = 2x - 2$?



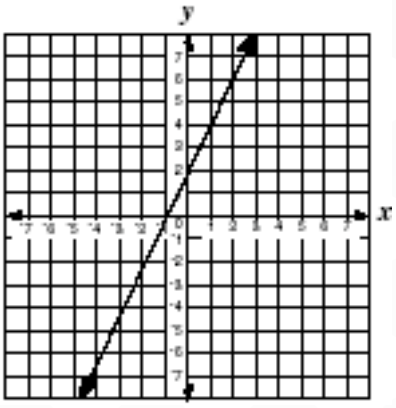
A



C



B



D

Algebra I (End-of-course)

Number Properties, Operations, and Linear Equations (Performance Level: Advanced) – Question 01

$$\sqrt{16} + \sqrt[3]{8} =$$

A 4
B 6
C 9
D 10

Algebra I (End-of-course)

Number Properties, Operations, and Linear Equations (Performance Level: Advanced) – Question 02

What is the solution for this equation?

$$|2x - 3| = 5$$

A $x = -4$ or $x = 4$

B $x = -4$ or $x = 3$

C $x = -1$ or $x = 4$

D $x = -1$ or $x = 3$

Algebra I (End-of-course)

Number Properties, Operations, and Linear Equations (Performance Level: Advanced) – Question 03

John's solution to an equation is shown below.

Given:	$x^2+5x+6=0$
Step 1:	$(x+2)(x+3)=0$
Step 2:	$x+2=0$ or $x+3=0$
Step 3:	$x=-2$ or $x=-3$

Which property of real numbers did John use for Step 2?

A multiplication property of equality

B zero product property of multiplication

C commutative property of multiplication

D distributive property of multiplication over addition

Algebra I (End-of-course)

Number Properties, Operations, and Linear Equations (Performance Level: Proficient) – Question 01

Which equation is equivalent to

$$5x - 2(7x + 1) = 14x?$$

A $-9x - 2 = 14x$

B $-9x + 1 = 14x$

C $-9x + 2 = 14x$

D $12x - 1 = 14x$

Algebra I (End-of-course)

Number Properties, Operations, and Linear Equations (Performance Level: Proficient) – Question 02

The chart below shows an expression evaluated for four different values of x.

x	x^2+x+5
1	7
2	11
6	47
7	61

Josiah concluded that for all positive values of x, x^2+x+5 produces a prime number. Which value of x serves as a counterexample to prove Josiah's conclusion false?

A 5
B 11
C 16
D 21

Algebra I (End-of-course)

Number Properties, Operations, and Linear Equations (Performance Level: Basic) – Question 01

Is the equation $3(2x-4)=-18$ equivalent to $6x-12=-18$?

A Yes, the equations are equivalent by the Associative Property of Multiplication.

B Yes, the equations are equivalent by the Commutative Property of Multiplication.

C Yes, the equations are equivalent by the Distributive Property of Multiplication over Addition.

D No, the equations are not equivalent.

Algebra I (End-of-course)

Number Properties, Operations, and Linear Equations (Performance Level: Basic) – Question 02

Which expression is equivalent to x^6x^2?

A x^4x^3

B x^5x^3

C x^7x^3

D x^9x^3

Algebra I (End-of-course)

Number Properties, Operations, and Linear Equations (Performance Level: Basic) – Question 03

Which equation is equivalent to

$$4(2-5x)=6-3(1-3x)?$$

A $8x=5$

B $8x=17$

C $29x=5$

D $29x=17$

Algebra I (End-of-course)

Number Properties, Operations, and Linear Equations (Performance Level: Basic) – Question 04

The total cost (c) in dollars of renting a sailboat for *n* days is given by the equation

$$c = 120 + 60n.$$

If the total cost was $360, for how many days was the sailboat rented?

A 2
B 4
C 6
D 8

Algebra I (End-of-course)

Number Properties, Operations, and Linear Equations (Performance Level: Basic) – Question 05

The cost to rent a construction crane is $750 per day plus $250 per hour of use. What is the maximum number of hours the crane can be used each day if the rental cost is not to exceed $2500 per day?

A 2.5
B 3.7
C 7.0
D 13.0

Algebra I (End-of-course)

Number Properties, Operations, and Linear Equations (Performance Level: Basic) – Question 06

Stan's solution to an equation is shown below.
Which statement about Stan's solution is true?

Given: $n + 8(n + 20) = 110$

Step 1: $n + 8n + 20 = 110$

Step 2: $9n + 20 = 110$

Step 3: $9n = 110 - 20$

Step 4: $9n = 90$

Step 5: $\frac{9n}{9} = \frac{90}{9}$

Step 6: $n = 10$

A Stan's solution is correct.
B Stan made a mistake in Step 1.
C Stan made a mistake in Step 3.
D Stan made a mistake in Step 5.

Algebra I (End-of-course)

Number Properties, Operations, and Linear Equations (Performance Level: Basic) – Question 07

When is this statement true?

"*The opposite of a number is less than the original number.*"

A This statement is never true.
B This statement is always true.
C This statement is true for positive numbers.
D This statement is true for negative numbers.

Algebra I (End-of-course)

Number Properties, Operations, and Linear Equations (Performance Level: Basic) – Question 08

Solve: $3(x+5)=2x+35$

Step 1: $3x+15=2x+35$

Step 2: $5x+15=35$

Step 3: $5x=20$

Step 4: $x=4$

Which is the first *incorrect* step in the solution shown above?

A Step 1
B Step 2
C Step 3
D Step 4

Algebra I (End-of-course)

Number Properties, Operations, and Linear Equations (Performance Level: Below Basic) – Question 01

Which number does not have a reciprocal?

A –1
B 0
C $\frac{1}{1000}$
D 3

Algebra I (End-of-course)

Quadratics and Polynomials (Performance Level: Advanced) – Question 01

Which is the factored form of

$3a^2 - 24ab + 48b^2$ **?**

A $(3a - 16b)(a - 3b)$

B $(3a - 16b)(a - 3b)$

C $3(a - 4b)(a - 4b)$

D $3(a - 8b)(a - 8b)$

Algebra I (End-of-course)

Quadratics and Polynomials (Performance Level: Advanced) – Question 02

What quantity should be added to both sides of this equation to complete the square?

$$x^2 - 8x = 5$$

A 4
B – 4
C 16
D –16

Algebra I (End-of-course)

Quadratics and Polynomials (Performance Level: Advanced) – Question 03

What are the solutions for the quadratic equation $x^2 + 6x = 16$?

A $-2, -8$

B $-2, 8$

C $2, -8$

D $2, 8$

Algebra I (End-of-course)

Quadratics and Polynomials (Performance Level: Advanced) – Question 04

Leanne correctly solved the equation

$x^2 + 4x = 6$ **by completing the square.**

Which equation is part of her solution?

A $(x+2)^2 = 8$

B $(x+2)^2 = 10$

C $(x+4)^2 = 10$

D $(x+4)^2 = 22$

Algebra I (End-of-course)

Quadratics and Polynomials (Performance Level: Advanced) – Question 05

Which is one of the solutions to the equation
$2x^2 - x - 4 = 0$?

A $\frac{1}{4} - \sqrt{33}$

B $-\frac{1}{4} + \sqrt{33}$

C $\frac{1+\sqrt{33}}{4}$

D $\frac{-1-\sqrt{33}}{4}$

Algebra I (End-of-course)

Quadratics and Polynomials (Performance Level: Advanced) – Question 06

What is the solution set of the quadratic equation $8x^2 + 2x + 1 = 0$?

A $\left\{-\frac{1}{2}, \frac{1}{4}\right\}$

B $\left\{-1+\sqrt{2}, -1-\sqrt{2}\right\}$

C $\left\{\frac{-1+\sqrt{7}}{8}, \frac{-1-\sqrt{7}}{8}\right\}$

D no real solution

Algebra I (End-of-course)

Quadratics and Polynomials (Performance Level: Advanced) – Question 07

$$\left(4x^2-2x+8\right)-\left(x^2+3x-2\right)=$$

A $3x^2+x+6$

B $3x^2+x+10$

C $3x^2-5x+6$

D $3x^2-5x+10$

Algebra I (End-of-course)

Quadratics and Polynomials (Performance Level: Proficient) – Question 01

Which is a factor of $x^2 - 11x + 24$?

A $x + 3$

B $x - 3$

C $x + 4$

D $x - 4$

Algebra I (End-of-course)

Quadratics and Polynomials (Performance Level: Proficient) – Question 02

Which of the following shows $9t^2 + 12t + 4$ factored completely?

A $(3t+2)^2$

B $(3t+4)(3t+1)$

C $(9t+4)(t+1)$

D $9t^2+12t+4$

Algebra I (End-of-course)

Quadratics and Polynomials (Performance Level: Proficient) – Question 03

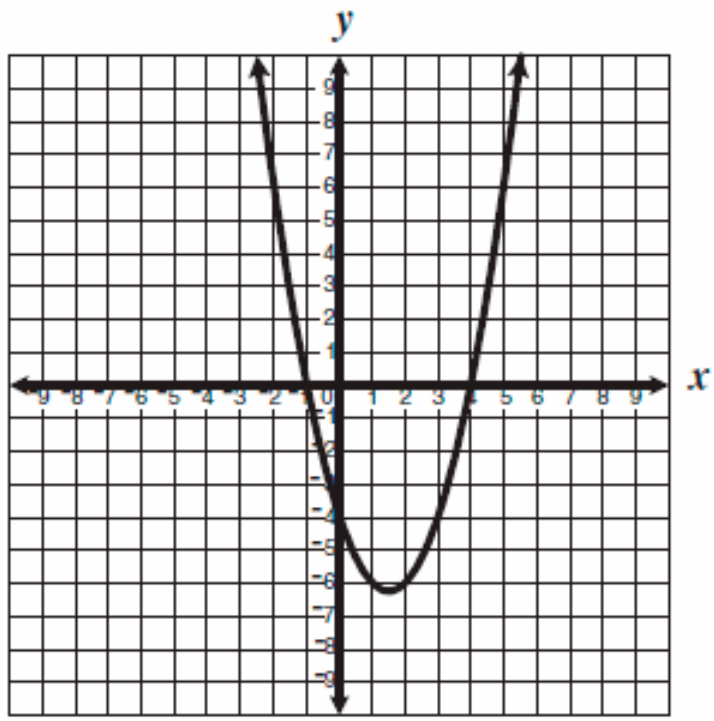
If x2 is added to x, the sum is 42. Which of the following could be the value of x?

A –7
B –6
C 14
D 42

Algebra I (End-of-course)

Quadratics and Polynomials (Performance Level: Proficient) – Question 04

The graph of the equation is $y = x^2 - 3x - 4$ shown below.



For what value or values of x is $y = 0$?

A $x = -1$ only

B $x = -4$ only

C $x = -1$ and $x = 4$

D $x = 1$ and $x = -4$

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Algebra I (End-of-course)

Quadratics and Polynomials (Performance Level: Proficient) – Question 05

Which of the following expressions is equal to

$(x+2)+(x-2)(2x+1)$**?**

A $2x^2-2x$

B $2x^2-4x$

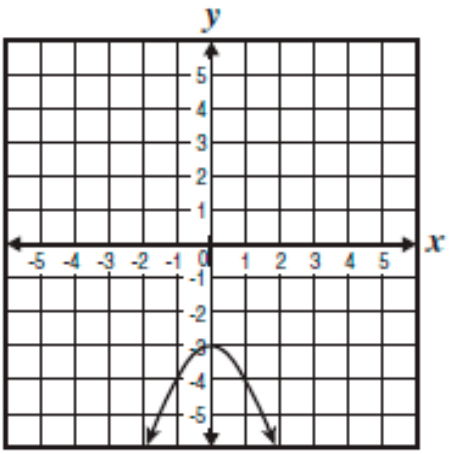
C $2x^2+x$

D $4x^2+2x$

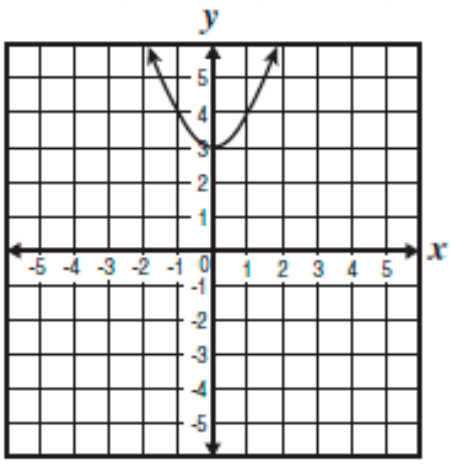
Algebra I (End-of-course)

Quadratics and Polynomials (Performance Level: Basic) – Question 01

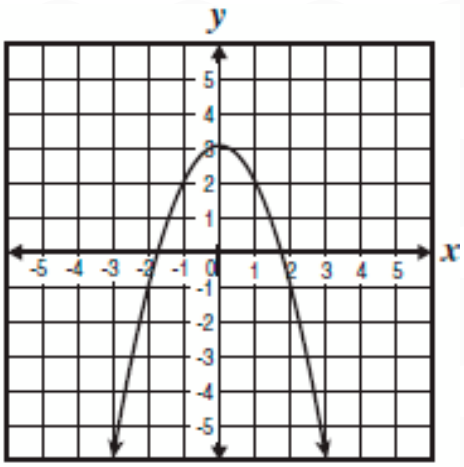
Which best represents the graph of $y = -x^2 + 3$?



A



C



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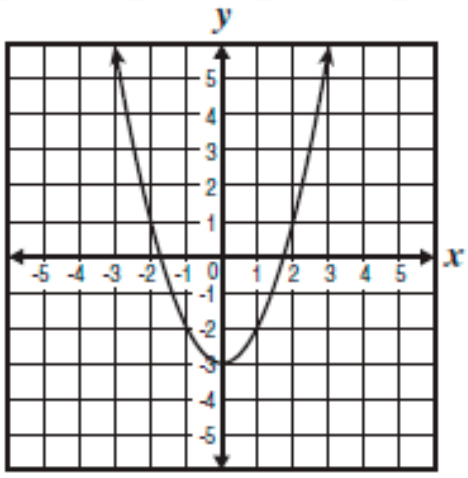

D

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Algebra I (End-of-course)

Quadratics and Polynomials (Performance Level: Basic) – Question 02

$$\frac{5x^3}{10x^7} =$$

A $2x^4$

B $\frac{1}{2x^4}$

C $\frac{1}{5x^4}$

D $\frac{x^4}{5}$

Algebra I (End-of-course)

Quadratics and Polynomials (Performance Level: Basic) – Question 03

The sum of two binomials is $5x^2 - 6x$. If one of the binomials is $3x^2 - 2x$, what is the other binomial?

A $2x^2 - 4x$

B $2x^2 - 8x$

C $8x^2 + 4x$

D $8x^2 - 8x$