1 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.

CSA10108

2 Which statement is false?

   A   The order in which two whole numbers are subtracted does not affect the difference.

   B   The order in which two whole numbers are added does not affect the sum.

   C   The order in which two rational numbers are added does not affect the sum.

   D   The order in which two rational numbers are multiplied does not affect the product.

CSA00001

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

   A   4

   B   6

   C   9

   D   10

CSA00471

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

   A $x^4 x^3$

   B $x^5 x^3$

   C $x^7 x^3$

   D $x^9 x^3$

CSA20167

5 Which number does *not* have a reciprocal?

   A -1

   B   0

   C $\dfrac{1}{1000}$

   D   3

CSA10152

6 What is the multiplicative inverse of $\dfrac{1}{2}$?

   A -2

   B $-\dfrac{1}{2}$

   C $\dfrac{1}{2}$

   D   2

CSA10153

Answers

Question Number	Correct Answer	Standard	Year of Release
1	C	1.1	2006
2	A	1.1	2008
3	B	2.0	2003
4	B	2.0	2005
5	B	2.0	2006
6	D	2.0	2007

7 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 $x = 3$

CSA00264

8 What is the solution set of the inequality $5 - |x + 4| \leq -3$?

- A $-2 \leq x \leq 6$
- B $x \leq -2$ or $x \geq 6$
- C $-12 \leq x \leq 4$
- D $x \leq -12$ or $x \geq 4$

CSA10036

9 Which equation is equivalent to $5x - 2(7x + 1) = 14x$?

- A $-9x - 2 = 14x$
- B $-9x + 1 = 14x$
- C $-9x + 2 = 14x$
- D $12x - 1 = 14x$

CSA00206

10 Which equation is equivalent to $4(2 - 5x) = 6 - 3(1 - 3x)$?

- A $8x = 5$
- B $8x = 17$
- C $29x = 5$
- D $29x = 17$

CSA00059

11 Which equation is equivalent to $3\left[7x - 4(x - 3)\right] + 1 = 16$?

- A $9x - 2 = 16$
- B $9x + 37 = 16$
- C $17x - 2 = 16$
- D $17x + 13 = 16$

CSA20078

12 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

CSA00485

13 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

CSA00332

Answers

Question Number	Correct Answer	Standard	Year of Release
7	C	3.0	2003
8	D	3.0	2004
9	A	4.0	2003
10	C	4.0	2005
11	B	4.0	2008
12	B	5.0	2003
13	B	5.0	2004

14 A 120-foot-long rope is cut into 3 pieces. The first piece of rope is twice as long as the second piece of rope. The third piece of rope is three times as long as the second piece of rope. What is the length of the longest piece of rope?

    A   20 feet

    B   40 feet

    C   60 feet

    D   80 feet

CSA10052

15 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

CSA10057

16 What is the solution to the inequality $x - 5 > 14$?

    A $x > 9$

    B $x > 19$

    C $x < 9$

    D $x < 19$

CSA00487

17 The lengths of the sides of a triangle are $y, y + 1,$ and 7 centimeters. If the perimeter is 56 centimeters, what is the value of y?

    A   24

    B   25

    C   31

    D   32

CSA10046

18 Beth is two years older than Julio. Gerald is twice as old as Beth. Debra is twice as old as Gerald. The sum of their ages is 38. How old is Beth?

    A   3

    B   5

    C   6

    D   8

CSA20171

Answers

Question Number	Correct Answer	Standard	Year of Release
14	*C*	5.0	2004
15	*C*	5.0	2006
16	*B*	5.0	2007
17	*A*	5.0	2007
18	*B*	5.0	2008

19 Which number serves as a counterexample to the statement below?

> All positive integers are divisible by 2 or 3.

A 100

B 57

C 30

D 25

CSG10197

---

20 What is the conclusion of the statement in the box below?

> If $x^2 = 4$, then $x = -2$ or $x = 2$.

A $x^2 = 4$

B $x = -2$

C $x = 2$

D $x = -2$ or $x = 2$

CSA30045

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21 Which of the following is a valid conclusion to the statement "If a student is a high school band member, then the student is a good musician"?

A All good musicians are high school band members.

B A student is a high school band member.

C All students are good musicians.

D All high school band members are good musicians.

CSA30095

22 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

CSA20027

---

23 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

CSA20034

Answers

Question Number	Correct Answer	Standard	Year of Release
19	D	24.1	2004
20	D	24.2	2006
21	D	24.2	2007
22	A	24.3	2005
23	B	25.1	2005

24 Stan's solution to an equation is shown below.

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: $\dfrac{9n}{9} = \dfrac{90}{9}$

Step 6: $n = 10$

Which statement about Stan's solution is true?

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.

CSA20035

25 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.

CSA20147

26 What is the *y*-intercept of the graph of $4x + 2y = 12$?

A   −4

B   −2

C   6

D   12

CSA00239

27 Which inequality is shown on the graph below?
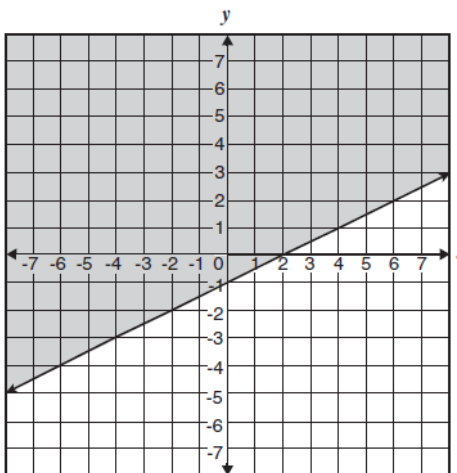
A $y < \dfrac{1}{2}x - 1$

B $y \le \dfrac{1}{2}x - 1$

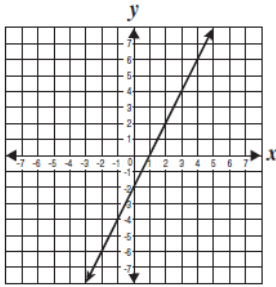C $y > \dfrac{1}{2}x - 1$

D $y \ge \dfrac{1}{2}x - 1$

CSA10130

Answers

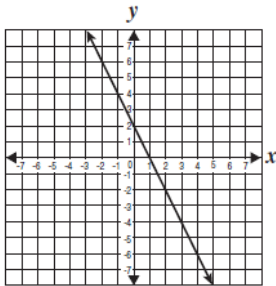| Question Number	Correct Answer	Standard	Year of Release
24	B	25.2	2006
25	C	25.3	2005
26	C	6.0	2003
27	D	6.0	2004

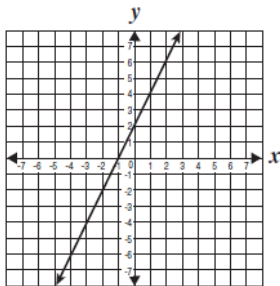**28**   Which *best* represents the graph of $y = 2x - 2$?

A

B
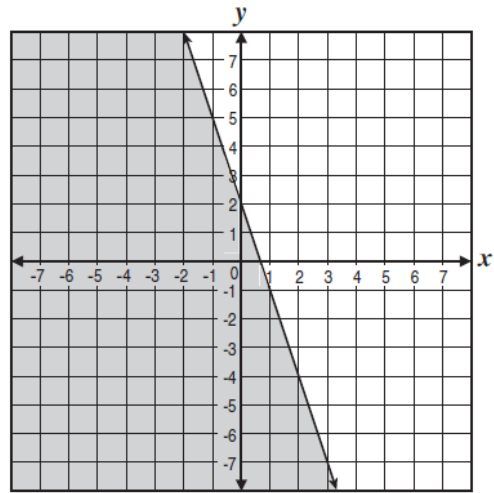
C
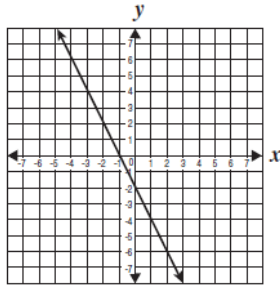
D

CSA00299

29   Which inequality does the shaded region of the graph represent?

A $3x + y \leq 2$

B $3x + y \geq 2$
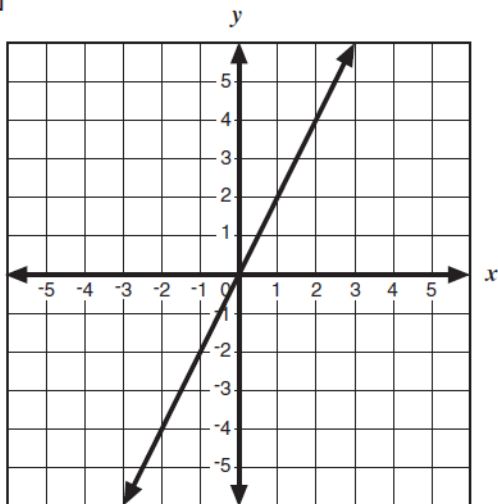
C $3x + y \leq -2$

D $3x + y \geq -2$

CSA20055

Answers

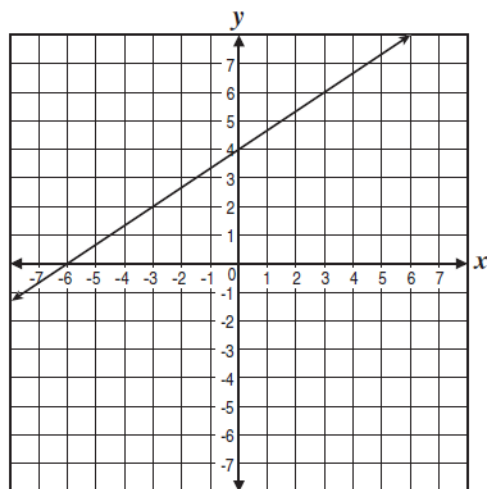| Question Number	Correct Answer	Standard	Year of Release
28	A	6.0	2006
29	A	6.0	2007

30

Which equation *best* represents the graph above?

A $y = x$

B $y = 2x$

C $y = x + 2$

D $y = 2x + 2$

CSA00508

31 Which equation represents the line shown in the graph below?

A $y = \dfrac{2}{3}x + 4$

B $y = \dfrac{2}{3}x - 6$

C $y = \dfrac{3}{2}x + 4$

D $y = \dfrac{3}{2}x - 6$

CSA10049

32 What is the *x*-intercept of the line defined by $-2x + 3y = 12$?

A   6

B   4

C -4

D -6

CSA00007

Answers

Question Number	Correct Answer	Standard	Year of Release
30	B	6.0	2007
31	A	6.0	2008
32	D	6.0	2008

33 Which point lies on the line defined by $3x + 6y = 2$?

A $(0, 2)$

B $(0, 6)$

C $\left(1, -\dfrac{1}{6}\right)$

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

CSA00009

---

34 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 $y = 4x + 43$

CSA10150

35 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 $c = \dfrac{1}{5}h + 5$

C $c = 5h + 5$

D $c = 5h - 5$

CSA10005

Answers

Question Number	Correct Answer	Standard	Year of Release
33	C	7.0	2003
34	A	7.0	2004
35	C	7.0	2005

36 Some ordered pairs for a linear function of x are given in the table below.

x	y
1	1
3	7
5	13
7	19

Which of the following equations was used to generate the table above?

A $y = 2x + 1$

B $y = 2x - 1$

C $y = 3x - 2$

D $y = 4x - 3$

CSA10181

37 Which point lies on the line represented by the equation below?

$$5x + 4y = 22$$

A $\left(-2, \dfrac{11}{4}\right)$

B $\left(-1, \dfrac{17}{4}\right)$

C $(2, 3)$

D $(6, 2)$

CSA10148

38 The equation of line l is $6x + 5y = 3$, 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.

CSA00241

39 Which equation represents a line that is

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

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

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

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

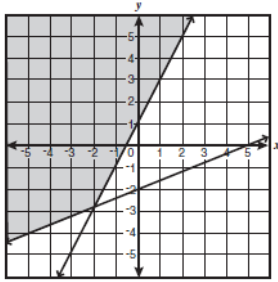D $y = \dfrac{5}{4}x + 4$

CSA10112

Answers

Question Number	Correct Answer	Standard	Year of Release
36	C	7.0	2007
37	C	7.0	2008
38	D	8.0	2003
39	A	8.0	2004

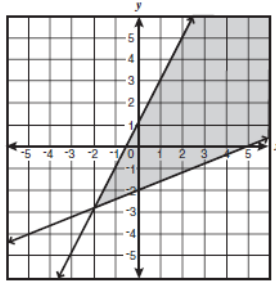**40** Which graph *best* represents the solution to this system of inequalities?
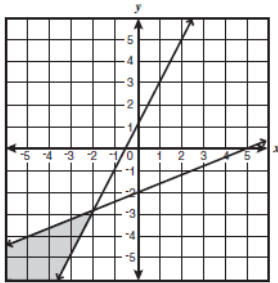
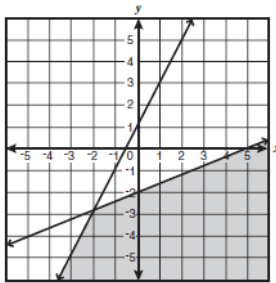$$\begin{cases} 2x \ge y - 1 \\ 2x - 5y \le 10 \end{cases}$$

A

C

B

D

CSA00516

41 What is the solution to this system of equations?

$$\begin{cases} y = -3x - 2 \\ 6x + 2y = -4 \end{cases}$$

A $(6, 2)$

B $(1, -5)$

C no solution

D infinitely many solutions

CSA00027

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

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

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

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

C $(-2, 3)$

D $(16, -3)$

CSA10131

43 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

CSA20083

44 Which of the following *best* describes the graph of this system of equations?

$$\begin{cases} y = -2x + 3 \\ 5y = -10x + 15 \end{cases}$$

A two identical lines

B two parallel lines

C two lines intersecting in only one point

D two lines intersecting in only two points

CSA00509

Answers

Question Number	Correct Answer	Standard	Year of Release
40	C	9.0	2003
41	D	9.0	2004
42	D	9.0	2006
43	A	9.0	2006
44	A	9.0	2007

45 Members of a senior class held a car wash to raise funds for their senior prom. They charged $3 to wash a car and $5 to wash a pick-up truck or a sport utility vehicle. If they earned a total of $275 by washing a total of 75 vehicles, how many cars did they wash?

A   25

B   34

C   45

D   50

CSA10187

46 At what point do the lines represented by the equations $2x + y + 1 = 0$ and $4x + y - 3 = 0$ intersect?

A $(2, 5)$

B $(2, -5)$

C $(-1, 1)$

D $(1, -1)$

CSA20092

47 $$\dfrac{5x^3}{10x^7} =$$

A $2x^4$

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

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

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

CSA00303

48 $\left(4x^2 - 2x + 8\right) - \left(x^2 + 3x - 2\right) =$

A $3x^2 + x + 6$

B $3x^2 + x + 10$

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

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

CSA00086

49 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 $8x^2 - 8x$

CSA10160

50 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 $4x^2 + 2x$

CSA10191

Answers

| Question Number	Correct Answer	Standard	Year of Release
45	D	9.0	2008
46	B	9.0	2008
47	B	10.0	2004
48	D	10.0	2005
49	A	10.0	2006
50	A	10.0	2006

51 A volleyball court is shaped like a rectangle. It has a width of x meters and a length of $2x$ meters. Which expression gives the area of the court in square meters?

    A $3x$

    B $2x^2$

    C $3x^2$

    D $2x^3$

CSA00496

52 What is the perimeter of the figure shown below, which is not drawn to scale?
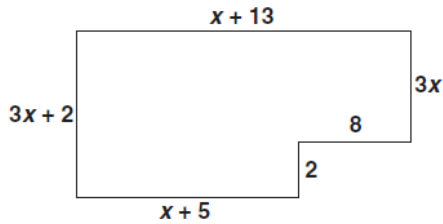
    A $5x + 33$

    B $5x^3 + 33$

    C $8x + 30$

    D $8x^4 + 30$

CSA10016

53 Which is the factored form of $3a^2 - 24ab + 48b^2$?

    A $(3a - 8b)(a - 6b)$

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

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

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

CSA00066

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

    A $x + 3$

    B $x - 3$

    C $x + 4$

    D $x - 4$

CSA00503

55 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 $9t^2 + 12t + 4$

CSA20106

56 What is the complete factorization of $32 - 8z^2$?

    A $-8(2 + z)(2 - z)$

    B $8(2 + z)(2 - z)$

    C $-8(2 + z)^2$

    D $8(2 - z)^2$

CSA20105

Answers

Question Number	Correct Answer	Standard	Year of Release
51	*B*	10.0	2007
52	*C*	10.0	2008
53	*C*	11.0	2003
54	*B*	11.0	2004
55	*A*	11.0	2005
56	*B*	11.0	2007

57 If x^2 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

CSA10171

58 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

CSA00478

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

  A $-2, -8$

  B $-2, 8$

  C $2, -8$

  D $2, 8$

CSA10062

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

CSA20139

61 Carter is solving this equation by factoring.

$$10x^2 - 25x + 15 = 0$$

Which expression could be one of his correct factors?

  A $x+3$

  B $x-3$

  C $2x+3$

  D $2x-3$

CSA00162

62 What are the solutions for the quadratic equation $x^2 - 8x = 9$?

  A 3

  B $3, -3$

  C $1, -9$

  D $-1, 9$

CSA10063

Answers

Question Number	Correct Answer	Standard	Year of Release
57	A	14.0	2004
58	C	14.0	2005
59	C	14.0	2005
60	B	14.0	2006
61	D	14.0	2007
62	D	14.0	2008

63 Toni is solving this equation by completing the square.

$$ax^2 + bx + c = 0 \text{ (where } a \geq 0)$$

Step 1: $\quad ax^2 + bx = -c$

Step 2: $\quad x^2 + \dfrac{b}{a}x = -\dfrac{c}{a}$

Step 3: $\quad$?

Which should be Step 3 in the solution?

A $\quad x^2 = -\dfrac{c}{b} - \dfrac{b}{a}x$

B $\quad x + \dfrac{b}{a} = -\dfrac{c}{ax}$

C $\quad x^2 + \dfrac{b}{a}x + \dfrac{b}{2a} = -\dfrac{c}{a} + \dfrac{b}{2a}$

D $\quad x^2 + \dfrac{b}{a}x + \left(\dfrac{b}{2a}\right)^2 = -\dfrac{c}{a} + \left(\dfrac{b}{2a}\right)^2$

CSA00072

64 Four steps to derive the quadratic formula are shown below.

I	$x^2 + \dfrac{bx}{a} = \dfrac{-c}{a}$
II	$\left(x + \dfrac{b}{2a}\right)^2 = \dfrac{b^2 - 4ac}{4a^2}$
III	$x = \pm\sqrt{\dfrac{b^2 - 4ac}{4a^2}} - \dfrac{b}{2a}$
IV	$x^2 + \dfrac{bx}{a} + \left(\dfrac{b}{2a}\right)^2 = \dfrac{-c}{a} + \left(\dfrac{b}{2a}\right)^2$

What is the correct order for these steps?

A I, IV, II, III

B I, III, IV, II

C II, IV, I, III

D II, III, I, IV

CSA20062

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

A $\quad \dfrac{1}{4} - \sqrt{33}$

B $\quad -\dfrac{1}{4} + \sqrt{33}$

C $\quad \dfrac{1 + \sqrt{33}}{4}$

D $\quad \dfrac{-1 - \sqrt{33}}{4}$

CSA00314

Answers

Question Number	Correct Answer	Standard	Year of Release
63	D	19.0	2003
64	A	19.0	2005
65	C	20.0	2003

66 Which statement *best* explains why there is no real solution to the quadratic equation $2x^2 + x + 7 = 0$?

A The value of $1^2 - 4 \cdot 2 \cdot 7$ is positive.

B The value of $1^2 - 4 \cdot 2 \cdot 7$ is equal to 0.

C The value of $1^2 - 4 \cdot 2 \cdot 7$ is negative.

D The value of $1^2 - 4 \cdot 2 \cdot 7$ is not a perfect square.

CSA10147

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

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

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

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

D no real solution

CSA10179

68 What are the solutions to the equation
$$3x^2 + 3 = 7x?$$

A $x = \dfrac{7 + \sqrt{85}}{6}$ or $x = \dfrac{7 - \sqrt{85}}{6}$

B $x = \dfrac{-7 + \sqrt{85}}{6}$ or $x = \dfrac{-7 - \sqrt{85}}{6}$

C $x = \dfrac{7 + \sqrt{13}}{6}$ or $x = \dfrac{7 - \sqrt{13}}{6}$

D $x = \dfrac{-7 + \sqrt{13}}{6}$ or $x = \dfrac{-7 - \sqrt{13}}{6}$

CSA00224

69 The graph of the equation $y = x^2 - 3x - 4$ is shown below.
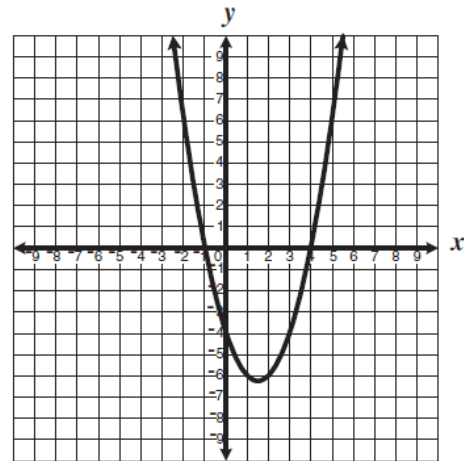
For what value or values of x is $y = 0$?

A $x = -1$ only

B $x = -4$ only

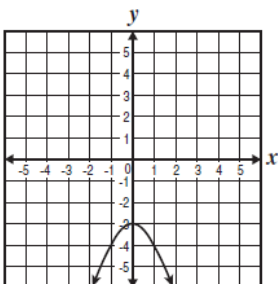C $x = -1$ and $x = 4$

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

CSA00514

Answers

Question Number	Correct Answer	Standard	Year of Release
66	*C*	20.0	2005
67	*D*	20.0	2005
68	*C*	20.0	2008
69	*C*	21.0	2003

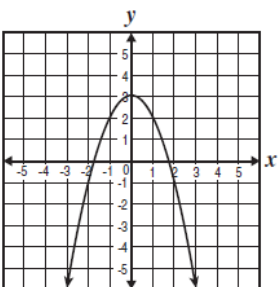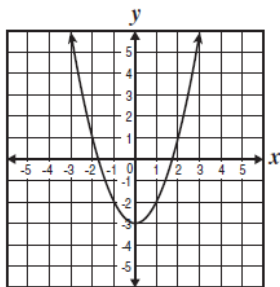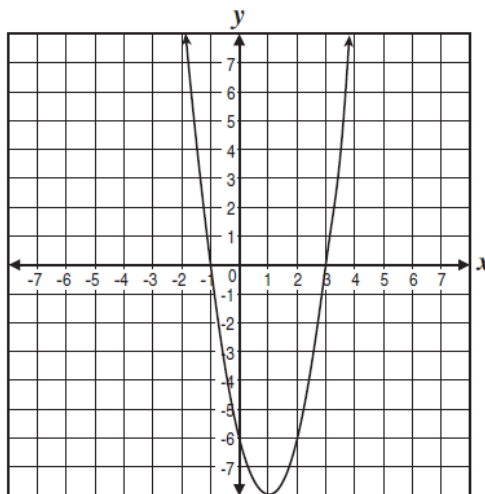**70** Which *best* represents the graph of $y = -x^2 + 3$?

A
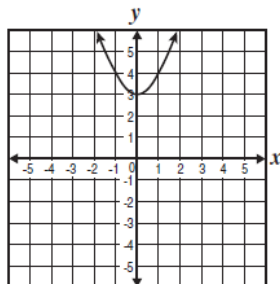
C

B

D

CSA00519

71 Which quadratic function, when graphed, has *x*-intercepts of 4 and -3?

A $y = (x - 3)(x + 4)$

B $y = (x + 3)(2x - 8)$

C $y = (3x - 1)(4x + 1)$

D $y = (3x + 1)(8x - 2)$

CSA20115

72 What are the real roots of the function in the graph?

A   3

B -6

C -1 and 3

D $-6, -1$, and 3

CSA20120

73 How many times does the graph of $y = 2x^2 - 2x + 3$ intersect the *x*-axis?

A   none

B   one

C   two

D   three

CSA10084

Answers

Question Number	Correct Answer	Standard	Year of Release
70	B	21.0	2006
71	B	21.0	2007
72	C	21.0	2008
73	A	22.0	2004

74 An object that is projected straight downward with initial velocity v feet per second travels a distance $s = vt + 16t^2$, where $t =$ time in seconds. If Ramón is standing on a balcony 84 feet above the ground and throws a penny straight down with an initial velocity of 10 feet per second, in how many seconds will it reach the ground?

    A   2 seconds

    B   3 seconds

    C   6 seconds

    D   8 seconds

CSA00158

75 The height of a triangle is 4 inches greater than twice its base. The area of the triangle is 168 square inches. What is the base of the triangle?

    A   7 in.

    B   8 in.

    C   12 in.

    D   14 in.

CSA00104

76 A rectangle has a diagonal that measures 10 centimeters and a length that is 2 centimeters longer than the width. What is the width of the rectangle in centimeters?

    A   5

    B   6

    C   8

    D   12

CSA10200

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

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

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

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

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

CSA00463

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

CSA10025

Answers

Question Number	Correct Answer	Standard	Year of Release
74	A	23.0	2003
75	C	23.0	2004
76	B	23.0	2008
77	B	12.0	2003
78	B	12.0	2005

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

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

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

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

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

CSA10189

80 What is $\dfrac{12a^3 - 20a^2}{16a^2 + 8a}$ reduced to lowest terms?

A $\dfrac{a}{2}$

B $\dfrac{3a-5}{2a+1}$

C $-\dfrac{2a}{4+2a}$

D $\dfrac{a(3a-5)}{2(2a+1)}$

CSA00013

81 What is the simplest form of the fraction $\dfrac{x^2 - 1}{x^2 + x - 2}$?

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

B $\dfrac{x-1}{x-2}$

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

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

CSA20127

82 $\dfrac{7z^2 + 7z}{4z + 8} \cdot \dfrac{z^2 - 4}{z^3 + 2z^2 + z} =$

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

CSA00067

Answers

Question Number	Correct Answer	Standard	Year of Release
79	A	12.0	2006
80	D	12.0	2007
81	D	12.0	2008
82	A	13.0	2003

Algebra I

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83 Which fraction equals the product $\left(\dfrac{x+5}{3x+2}\right)\left(\dfrac{2x-3}{x-5}\right)$?

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

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

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

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

CSA10029

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84 $$\dfrac{x^2+8x+16}{x+3} \div \dfrac{2x+8}{x^2-9} =$$

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

CSA20164

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85 Which fraction is equivalent to $\dfrac{\frac{3x}{5}}{\frac{x}{4}+\frac{x}{2}}$?

A $\dfrac{x^2}{5}$

B $\dfrac{9x^2}{20}$

C $\dfrac{4}{5}$

D $\dfrac{9}{5}$

CSA10141

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86 A pharmacist mixed some 10%-saline solution with some 15%-saline solution to obtain 100 mL of a 12%-saline solution. How much of the 10%-saline solution did the pharmacist use in the mixture?

A   60 mL

B   45 mL

C   40 mL

D   25 mL

CSA00333

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87 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

CSA00576

Answers

Question Number	Correct Answer	Standard	Year of Release
83	D	13.0	2005
84	C	13.0	2006
85	C	13.0	2007
86	A	15.0	2003
87	B	15.0	2004

88 One pipe can fill a tank in 20 minutes, while another takes 30 minutes to fill the same tank. How long would it take the two pipes together to fill the tank?

   A   50 min

   B   25 min

   C   15 min

   D   12 min

CSA00161

89 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

CSA10055

90 Lisa will make punch that is 25% fruit juice by adding pure fruit juice to a 2-liter mixture that is 10% pure fruit juice. How many liters of pure fruit juice does she need to add?

   A   0.4 liter

   B   0.5 liter

   C   2 liters

   D   8 liters

CSA10186

91

Jena's Vacation

Miles Traveled	600	450	300	960
Gallons of Gasoline	20	15	10	x

Jena's car averaged 30 miles per gallon of gasoline on her trip. What is the value of x in gallons of gasoline?

   A   32

   B   41

   C   55

   D   80

CSA10064

92 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)}

CSA10070

Answers

Question Number	Correct Answer	Standard	Year of Release
88	*D*	15.0	2006
89	*A*	15.0	2006
90	*A*	15.0	2007
91	*A*	15.0	2008
92	*B*	16.0	2004

93   **Which relation is a function?**

A

Input	Output
1	2
2	2
3	3
4	3

B

Input	Output
2	6
2	5
6	4
6	3

C

Input	Output
1	2
2	4
4	6
4	8

D

Input	Output
0	1
0	2
1	3
1	4

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

A

C

B

D
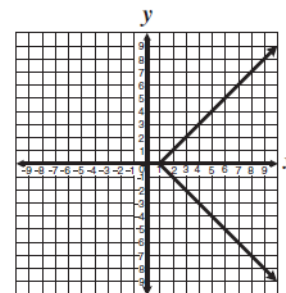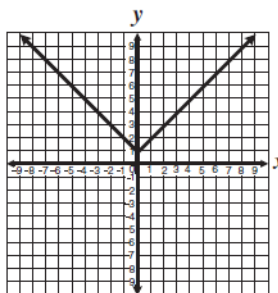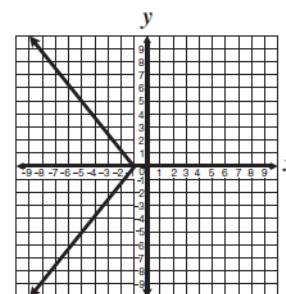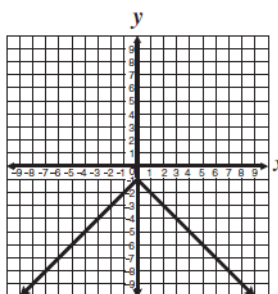
CSA00522

CSA10071

Answers

Question Number	Correct Answer	Standard	Year of Release
93	A	16.0	2008
94	A	17.0	2004

95 What is the domain of the function shown on the graph below?
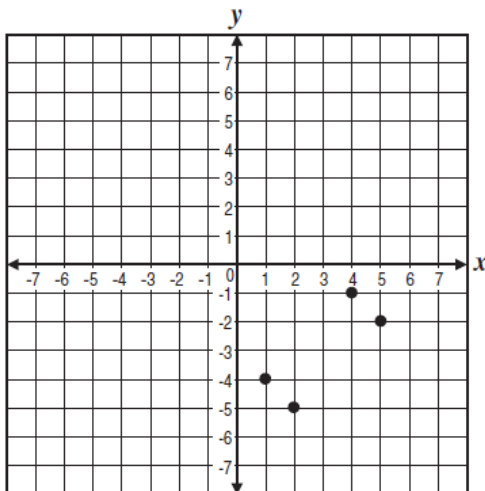
A $\{-1, -2, -3, -4\}$

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

C $\{1, 2, 3, 4\}$

D $\{1, 2, 4, 5\}$
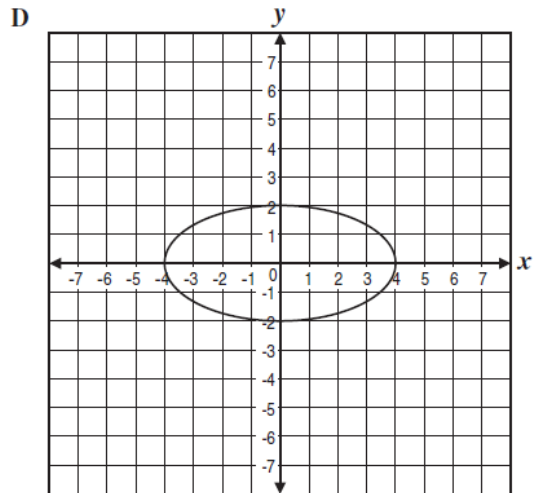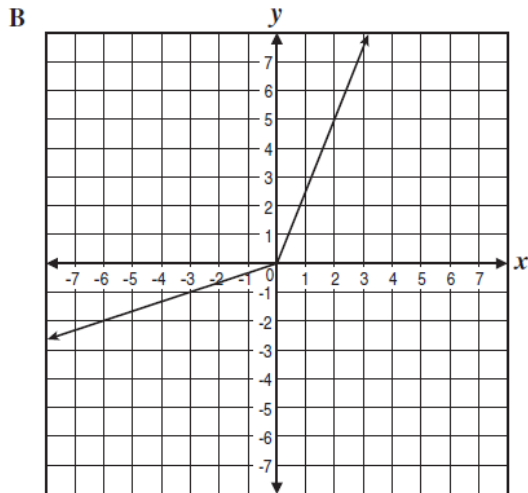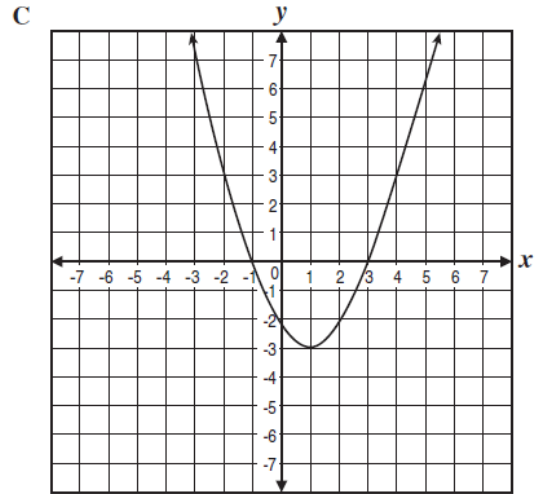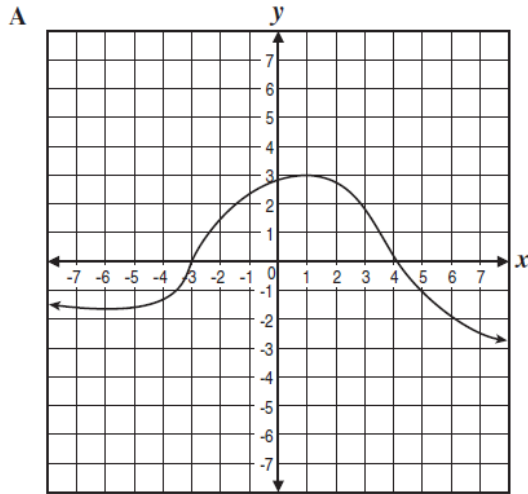
CSA10072

Answers

Question Number	Correct Answer	Standard	Year of Release
95	D	17.0	2005

96 Which of the following graphs represents a relation that is *not* a function of *x*?

A

C

B

D

CSA30002

Answers

Question Number	Correct Answer	Standard	Year of Release
96	*D*	18.0	2007