Alg 1 SOL Released Questions:

Quadratics

Using the quadratic curve of best fit, which equation most closely represents the set of data?

$\{(-8, 80.4), (-7, 57.8), (-6, 38.6), (-5, 22.8), (3, 18.8), (5, 51.8), (7, 98.4)\}$

A $y = x^2 + 2x - 5$

B $y = x^2 - 3x + 5.2$

C $y = 1.7x^2 - 3x + 5$

D $y = 1.7x^2 + 2.9x - 5.2$

PIG 2009

A function f is described.

- $f(x) = (x - 2)^2 + 3$
- The domain of f is all real numbers greater than 0.

The range of f is all real numbers greater than or equal to —

A 2

B 3

C 5

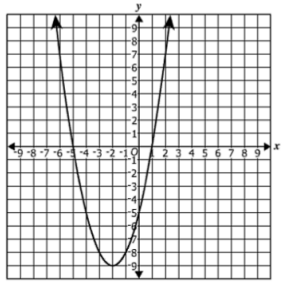
D 7

PIG 2009

Directions: Click on the grid to plot each solution. You must plot all solutions.

The graph of $f(x) = x^2 + 4x - 5$ is shown.

Identify each solution to $f(x) = 0$.



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PIG 2009

What are the solutions to the equation $2x^2 + 5x + 3 = 0$?

A $x = 0.5$ and $x = -3$

B $x = -1$ and $x = 6$

C $x = -1$ and $x = -1.5$

D $x = 1$ and $x = 5$

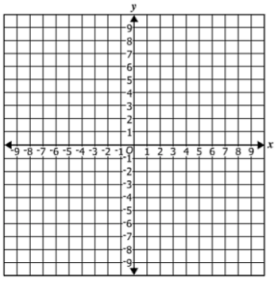
PIG 2009

Directions: Click on the grid to plot the three points you want to select. The coordinates of the points must be integers.

A function is represented by this rule.

One more than one-fourth the square of a number x is y.

Plot three points on the grid that are represented by this rule. Each point must have coordinates that are integers.



PIG 2009

In which table do the values represent the rule shown?

The square of the sum of x and 5 is equal to y.

A

x	y
3	28
4	29

C

x	y
3	64
4	81

B

x	y
3	14
4	21

D

x	y
3	34
4	41

PIG 2009

Which quadratic equation has solutions of 5 and 7 ?

A $x^2 - 5x = 0$
B $x^2 - 2x - 35 = 0$
C $x^2 - 3x - 28 = 0$
D $x^2 - 12x + 35 = 0$

2010

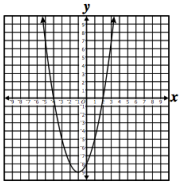
Which of the following is a solution to $2x^2 + 2x - 12 = 0$?

A -12
B -3
C -2
D 0

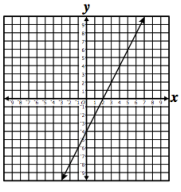
2010

Which graph *best* represents the function $g(x) = (x-2)(x+4)$?

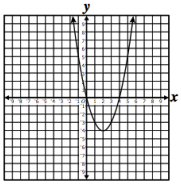
F



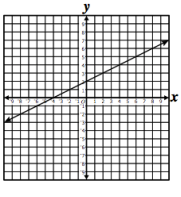
H



G



J



2010

Which of the following is the solution set to the equation $x^2 - 3x - 28 = 0$?

A $\{-28, 1\}$
B $\{-4, 7\}$
C $\{-2, 14\}$
D $\{0, 28\}$

2009

Given the following equation, which could be the value of x ?

$$(x-1)(x+3)=5$$

F 1
G $^{-}2$
H $^{-}3$
J $^{-}4$

2008

What is the solution set for the following quadratic equation?

$$x^2-4x+4=0$$

F $\{2\}$
G $\{^{-}2\}$
H $\{^{-}2,2\}$
J $\{1,3\}$

2008

What are the x-intercepts of the graph of the following equation?

$$y=x^2+6x-7$$

A $^{-}7$ and $^{-}1$
B 1 and 7
C $^{-}1$ and 7
D $^{-}7$ and 1

2008

What is the solution set for the equation below?

$$(x+5)(x+3)=0$$

A $\{0, 8\}$
B $\{3, 5\}$
C $\{^{-}2, 8\}$
D $\{^{-}5, ^{-}3\}$

2007

The profit equation for a manufacturing firm is $P=x^2-2{,}500$ where P is profit and x is the number of units sold. For what number of units sold does the company break even $(P=0)$?

F 50 units sold
G 100 units sold
H 500 units sold
J 1,250 units sold

2007

Which is a zero of the following function?

$$f(x)=x^2-x-12$$

F 1
G 2
H 3
J 4

2007

What are the x-intercepts of the graph of the following equation?

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

F -4 and -1
G -2 and 3
H -1 and 1
J -1 and 2

2007

Which is a solution to the following equation?

$$x^2 - 12x - 28 = 0$$

F $x = 14$
G $x = 12$
H $x = 2$
J $x = 0$

2006

$$x^2 - 3x = 0$$

Which is the solution set for the equation above?

F $\{0, 3\}$
G $\{-3, 0\}$
H $\{1, 3\}$
J $\{2, 3\}$

2006

Which is a zero of

$$f(x) = x^2 - 15x + 54?$$

F 3
G 5
H 9
J 15

2006

The miles per gallon, m, of an experimental car is given by

$$m = 75 - 0.3\left(\frac{s}{10}\right)^2$$

where s is the car's speed in miles per hour. What is the car's miles per gallon when its speed is 100 miles per hour?

F 10 mpg
G 30 mpg
H 45 mpg
J 50 mpg

2006

The length of a rectangle is 6 meters more than its width. If the area is 135 square meters, what is its width?

F 5 m
G 9 m
H 15 m
J 27 m

2006

What are the solutions to the equation below?

$$\frac{3}{4}x^2 - 12 = 0$$

A $x = -4$ or $x = 4$
B $x = -12$ or $x = 9$
C $x = -3$ or $x = 3$
D $x = 3$ or $x = 9$

2005

Which is the solution set for $x^2 - 5x - 14 = 0$?

F $\{-7, -2\}$
G $\{-7, 2\}$
H $\{-2, 7\}$
J $\{2, 7\}$

2005

The left side of a solid block is held at a constant temperature of 200°C. The temperature profile within the block is given by $T = 200 - 5x - x^2$ where x is the distance from the left side of the block in centimeters and T is the temperature in degrees Celsius of the block at location x. At what value of x is $T = 50$°C?

F $x = 5$ cm
G $x = 10$ cm
H $x = 15$ cm
J $x = 20$ cm

2004

Which of the following is a solution of the equation

$$x^2 - 13x + 40 = 0?$$

F -8
G 4
H 5
J 10

2004

The ordered pairs shown form a quadratic pattern.

x	y
0	1
1	2
2	5
3	10
4	17
5	?

What is the missing value of y?

A 10
B 22
C 24
D 26

2004

Which is a zero of the function

$$f(x) = x^2 - 8x + 7?$$

A 8
B 7
C -1
D -7

2004

Which measure is closest to the length of a side of a square that has an area of 221 square feet?

F 11.0 ft
G 14.9 ft
H 16.4 ft
J 55.2 ft

2004

$$2x^2 - 3x + 1 = 0$$

Which is the solution set for the equation above?

A $\{-2, -1\}$
B $\left\{-1, -\frac{1}{2}\right\}$
C $\left\{\frac{1}{2}, 1\right\}$
D $\{1, 2\}$

2003

$$x^2 - 4 = 0$$

Which is the solution set for the equation above?

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

2003

Which is a zero of the function

$$f(x) = x^2 + 6x - 7?$$

F -7
G -6
H 7
J 41

2003

Which is a solution to $(2x + 3)^2 = 25$?

F -4
G -2
H -1
J 2

2002

The ordered pairs in the table follow a quadratic pattern.

8	2	7	9	4	x
64	4	49	81	16	25

What is the value of x?

A 10
B 6
C 5
D 3

2002

The stress distribution on a structure is given by $s = 2x^2 + 4x - 30$ where s is stress in pounds per square inch and x is the distance in feet from a reference point. At what distance is the stress equal to 0?

A 3 ft
B 5 ft
C 6 ft
D 12 ft

2002

The velocity of an object in a liquid can be described by the equation $v = 20 - t - t^2$ where v is the velocity in meters per second and t is time in seconds. At what time will $v = 0$?

F 4 sec
G 5 sec
H 6 sec
J 7 sec

2001

Which is a zero of the function $f(x) = x^2 + 3x - 4$?

A $^-4$
B $^-1$
C 3
D 4

2001

A weather balloon in the shape of a sphere has a surface area of 160 square meters. If the formula for the surface area of a sphere is $S.A. = 4\pi r^2$, to the nearest tenth of a meter, what is the radius of the balloon?

A 2.0 m
B 3.6 m
C 11.2 m
D 12.7 m

2001

The number of seconds to complete a chemical reaction was determined to be given by the equation $s = 250 - 5T - T^2$ where s is the number of seconds and T is the temperature in degrees Celsius at which the reaction occurred. If a chemical reaction was complete in 200 seconds, what was the temperature at which the reaction occurred?

A 5° C
B 7° C
C 10° C
D 12° C

2000

$x^2 - x - 6 = 0$

Which is the solution set for the equation above?

F $\{^-3, 2\}$
G $\{^-2, 3\}$
H $\{^-6, 5\}$
J $\{^-5, 6\}$

2000