Algebra 1 SOL Released Questions:

Functions

(Evaluate, Zeros, Intercepts, . . .)

Directions: Click on the box to choose each function you want to select. You must select all correct functions.

Identify each function that has exactly one zero.

- $f(x) = 9x^2 - 4$
- $g(x) = 9(x - 8)$
- $h(x) = x^2 + 4x + 8$
- $j(x) = x^2 - 8x + 16$
- $k(x) = -2(x + 4)(x + 1)$

PIG 2009

Directions: Click on the box to choose each function you want to select. You must select all correct functions.

Identify each function that has an x-intercept of 3.

- $f(x) = \frac{-4x + 15}{5}$
- $g(x) = 3 - \frac{1}{2}x^2$
- $h(x) = \frac{5}{3}x - 5$
- $j(x) = (x + 3)(x - 5)$
- $k(x) = 3x^2 - 11x + 6$

PIG 2009

Read each question and choose the best answer. For this test you may assume that the value of the denominator is not zero.

SAMPLE

If $f(x) = x^2 + 2x + 3$, what is the value of $f(x)$ when $x = 6$?

A 27
B 42
C 51
D 60

2010

The function $f(x) = 35 + 15x$ represents the amount of money, in dollars, Mr. Lewis earns for working x hours. How much money does Mr. Lewis earn for working 25 hours?

A $75
B $375
C $410
D $1,250

2010

Which of the following sets of ordered pairs is a function?

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

B $\{(2, 5), (-1, 9), (6, 3), (-1, -2)\}$

C $\{(1, 3), (-2, 5), (4, 5), (3, -2)\}$

D $\{(5, 6), (-2, 3), (10, 1), (-2, -9)\}$

2010

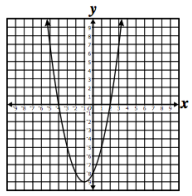
What is $g(2)$ for $g(x) = \frac{1}{2}x^3 + 2x$?

F 5
G 7
H 8
J 12

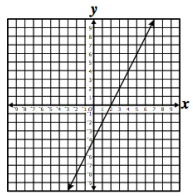
2010

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

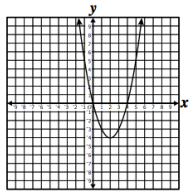
F



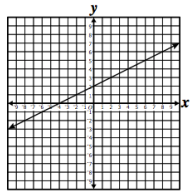
H



G



J



Which number is a zero of the function f ?

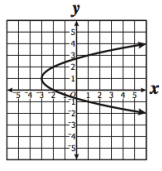
$$f(x) = x^2 - x - 6$$

F 0
G 2
H 3
J 6

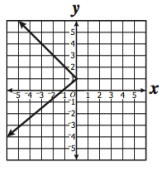
2009

Which graph apparently represents a function of x ?

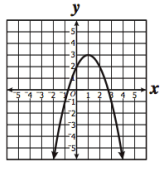
A



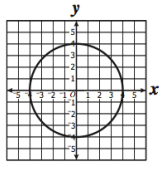
C



B



D



2009

A function of x consists of five ordered pairs of the form (x, y). Four of the ordered pairs are shown below.

$(1, 9)$, $(3, 19)$, $(5, 29)$, $(7, 39)$

Which could be the 5th ordered pair of the function?

A $(9, 8)$
B $(1, 49)$
C $(5, 19)$
D $(3, 9)$

2009

The function $f(x) = 1{,}200 - 50x$ gives the distance left to travel after driving x hours. What is $f(9)$, the distance left to travel after driving 9 hours?

A 450 miles
B 691 miles
C 750 miles
D 850 miles

2009

Which is a zero of the function defined by the following equation?

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

F -2
G -1
H 1
J 2

2009

The following equation defines a function of x.

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

If $(6, n)$ is an element of the function, what is the value of n ?

A -9
B -6
C -4
D 0

2008

If $f(2) = 13$, which could be the equation for $f(x)$?

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

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

C $f(x) = 2x^3 + 5$

D $f(x) = 3x^2 + 1$

2008

Which is a zero of the function defined by the following equation?

$$f(x) = 2x - 6$$

A -6
B -3
C 2
D 3

2008

The ordered pairs in the sets shown below are of the form (x, y). In which set of ordered pairs is y a function of x ?

F $\{(-3,4),\ (1,-9),\ (1,4)\}$
G $\{(0,-5),\ (0,4),\ (0,5)\}$
H $\{(1,-1),\ (2,-1),\ (3,-3)\}$
J $\{(0,1),\ (1,-1),\ (1,0)\}$

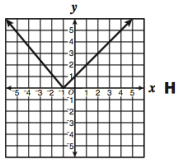
2008

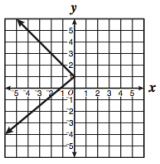
If $f(x) = 3x^2 + 2x - 1$, what is $f(0)$?

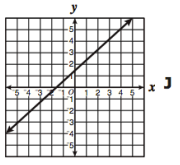
A -1
B 0
C 1
D 4

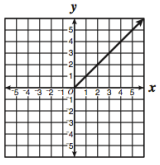
2008

Which graph does *not* represent a function of x ?

F 

H 

G 

J 

2008

Each of the following tables contains elements of an (x, y) relationship. Which table contains four points that *cannot* lie on the graph of a function of x ?

F

x	0	2	3	4
y	−1	−2	−3	−4

G

x	1	2	3	2
y	4	2	2	4

H

x	−1	−2	3	4
y	2	4	6	8

J

x	0	1	5	6
y	5	9	2	−1

2008

The ordered pairs in the sets shown below are of the form (x, y). In which set of ordered pairs is y *not* a function of x?

A $\{(1,4),(2,4),(3,4),(4,4)\}$

B $\{(2,0),(4,1),(6,2),(8,3)\}$

C $\{(11,2),(12,4),(13,6)\}$

D $\{(-6,37),(-6,10),(-5,26)\}$

2007

If $f(x) = 8x + 6$, what is $f(-1)$?

F -14

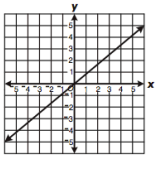
G -2

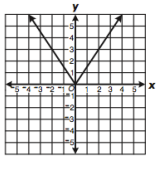
H 2

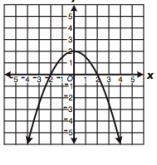
J 14

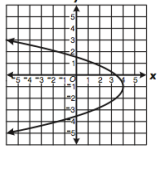
2007

Which of the following could not be the graph of a function of x?

A 

C 

B 

D 

2007

If $f(x) = 5x - 2$, what is $f(3)$?

F 0

G 8

H 13

J 15

2007

Which is a zero of the function defined by the following equation?

$$f(x) = 5x - 20$$

A -20
B 0
C 4
D 5

2007

The ordered pairs in the sets shown below are of the form (x, y). In which set of ordered pairs is y a function of x?

F $\{(-6, 12), (1, 8), (1, 13)\}$
G $\{(0, 2), (0, 4), (4, 0)\}$
H $\{(7, -1), (7, -2), (7, -3)\}$
J $\{(1, 3), (2, 4), (3, 5)\}$

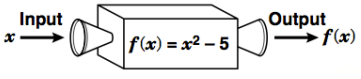
2006

If $f(x) = 7(x - 2) + 4(x + 1)$,

what is $f(2)$?

A 9
B 10
C 11
D 12

2006



When the input is $\frac{1}{3}$, what is the output?

F $-\frac{29}{6}$
G $-\frac{44}{9}$
H $-\frac{14}{3}$
J $\frac{46}{9}$

2005

The ordered pairs in the sets shown below are of the form (x, y). In which set is y a function of x?

A $\{(1, 3), (2, 6), (3, 1), (6, 3)\}$
B $\{(1, 3), (3, 1), (3, 4), (4, 3)\}$
C $\{(1, -2), (1, 0), (1, 5), (1, 7)\}$
D $\{(0, 3), (1, 4), (2, 4), (2, 8)\}$

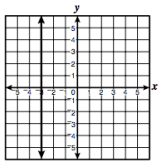
2005

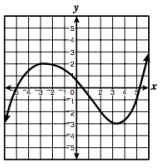
Which of these pairs of the form (x, y) could *not* lie on the graph of a function of x?

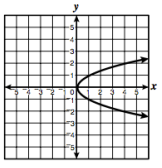
F (1, 1) and (3, 1)
G (1, 1) and (2, 1)
H (1, 1) and (1, 2)
J (1, 1) and (2, 2)

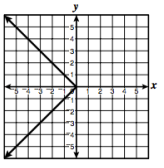
2005

Which of the following represents the graph of a function of x?

A 

C 

B 

D 

2005

Which is a zero of the function

$$f(x) = 2x - 10?$$

A 10
B 8
C 5
D $^-5$

2005

If $f(x) = \dfrac{3 - x^2}{3 - x}$, what is $f(2)$?

F $^-2$
G $^-1$
H 1
J 2

2005

The point $(q, 0)$ lies on the graph of the following function.

$$f(x) = {}^-\frac{3}{4}x - 6$$

What is the value of q?

A $^-8$
B $^-6$
C 6
D 8

2005

If $f(x) = {}^-2x^2 + x - 5$, what is $f(3)$?

F $^-20$
G $^-14$
H 16
J 34

2004

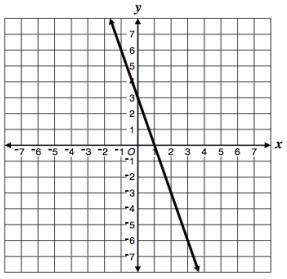
Which is a zero of the function

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

A 8
B 7
C $^-1$
D $^-7$

2004

The graph of the function $f(x) = -3x + 3$ is shown.

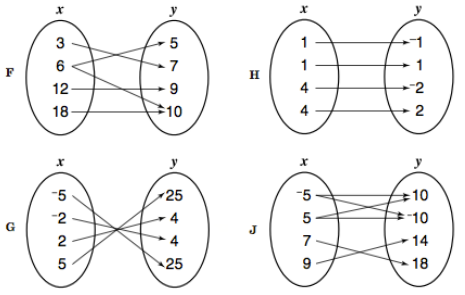


What is the value of $f(3)$?

F 3
G 0
H −2
J −6

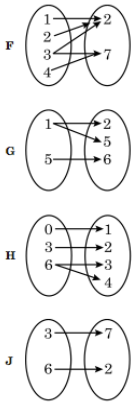
2004

Which of these data sets represents a function?



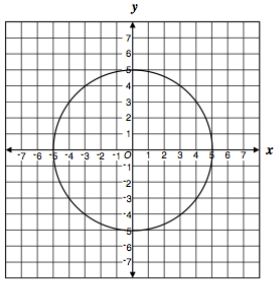
2004

Which of these data sets represents a function?



2003

Loki said the following graph does *not* represent a function of x.



Which pair of points could Loki use to prove that her statement is correct?

A (−3, 4) and (−3, −4)
B (−4, 3) and (4, 3)
C (−3, 4) and (4, −3)
D (−5, 0) and (5, 0)

2003

The numbers in this table follow a linear pattern.

p	w
−3	14
−2	11
−1	?
0	5
1	2
2	−1

What is the missing value?

A 7
B 8
C 9
D 10

2003

If $f(x) = -2x + 3$, what is $f(-4)$?

F −5
G −1
H 5.5
J 11

2003

Which of the following does *not* represent a function of x?

A

x	1	1	1	1
y	1	2	3	4

B

x	1	2	3	4
y	1	1	1	1

C

x	1	2	3	4
y	2	2	4	5

D

x	0	2	5	3
y	7	3	0	2

2003

Which set of ordered pairs is *not* a function?

F $\{(-2, 3), (4, 1), (2, 1), (1, 5)\}$
G $\{(1, 4), (2, 3), (3, 2), (4, 3)\}$
H $\{(2, 3), (3, 2), (4, 4), (5, 2)\}$
J $\{(-2, 3), (1, 4), (2, 3), (1, 5)\}$

2002

Which is a zero of the function $f(x) = 3x - 21$?

A -21
B -7
C 0
D 7

2002

Which of the following tables does *not* represent a function?

A

x	$f(x)$
2	7
3	10
5	16
8	25

B

x	$f(x)$
1	2
7	2
-4	2
-5	2

C

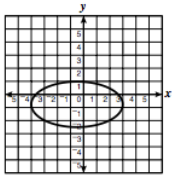
x	$f(x)$
36	6
36	-6
25	5
25	-5

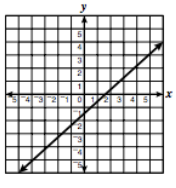
D

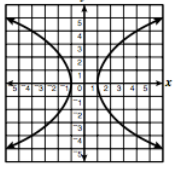
x	$f(x)$
0	36
2	38
9	45
20	56

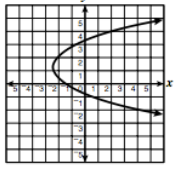
2001

Which of the following represents the graph of a function?

F 

H 

G 

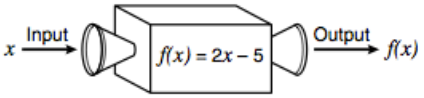
J 

2001

Which of the following sets of ordered pairs is a function?

A $\{(2, 1), (2, 2), (3, 4), (5, 6)\}$
B $\{(-2, -1), (1, 2), (3, 4), (1, 5)\}$
C $\{(1, 2), (2, 2), (3, 3), (2, 4)\}$
D $\{(1, 1), (2, 1), (3, 2), (4, 4)\}$

2001



Using the function machine from the diagram, what is $f(10)$?

F 5
G 7.5
H 15
J 25

2001

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

A -4
B -1
C 3
D 4

2001

Which of the following tables represents a function?

A

x	y
4	-2
4	0
4	2
4	4

C

x	y
-1	1
0	0
1	1
2	4

B

x	y
1	-2
0	0
1	2
4	3

D

x	y
2	-4
0	2
2	6
4	8

2000

(0, -3), (2, -2), (4, -1), (6, 0), . . .

These ordered pairs follow a pattern. If (10, y) is in this pattern, what is the value of y?

A 1
B 2
C 3
D 4

2000

x	y
0	-5
2	-3
-2	-7
4	-1
-4	-9

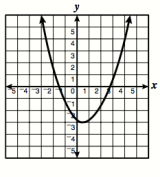
Using the same relationship between x and y as the table, what is the value of y when x is 8?

F -1
G 2
H 3
J 5

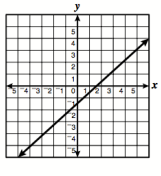
2000

Which of the following is *not* a graph of a function?

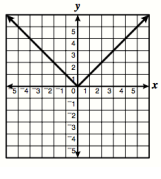
A



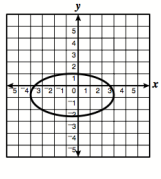
C



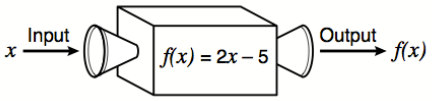
B



D



2000



Using the function machine in the diagram, what is the output when 12 is input?

A 7
B 8.5
C 19
D 29

2000

If $f(x) = \frac{2}{3}x - 6$, what is $f(12)$?

F 2
G 8
H 14
J 27

2000