

Name: _____

Assignment: SPRING 2020 MAT115 Assignment 2

- 1 Point $A(3, -2)$ and point $B(-1, 6)$ are endpoints of \overline{AB} . Point C is the midpoint of \overline{AB} . What is the equation of a line perpendicular to \overline{AB} that passes through point C ?

1 $y = \frac{1}{2}x + \frac{3}{2}$

2 $y = -\frac{1}{2}x + \frac{5}{2}$

3 $y = -2x + 4$

4 $y = 2x$

- 2 The table below could be used to graph which equation?

x	y
0	2
1	1
-1	3
2	0

1 $y = -x + 2$

2 $y = x + 2$

3 $y = -x - 2$

4 $y = x - 2$

Class/Period: _____

Teacher: Villegas

- 3 Given $f(x) = 2|3x - 4| - 24$

Part A: Evaluate $f(0) =$

Part B: Solve $f(x) = 0$

1

$\frac{16}{3}$

2

$-\frac{16}{3}$

3

$\frac{16}{3}$ and $-\frac{8}{3}$

4

$\frac{8}{3}$ and $-\frac{16}{3}$

The correct answer to part B is choice

- 4 Which chart could represent the function $f(x) = -2x + 6$?

1

x	$f(x)$
0	6
2	10
4	14
6	18

3

x	$f(x)$
0	8
2	10
4	12
6	14

2

x	$f(x)$
0	4
2	6
4	8
6	10

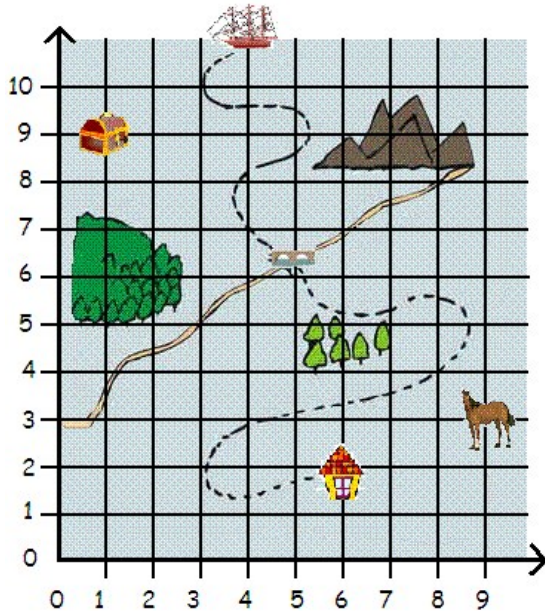
4

x	$f(x)$
0	6
2	2
4	-2
6	-6

5 Which properties best describe the coordinate graph of two distinct parallel lines?

- 1 same slopes and same intercepts
- 2 same slopes and different intercepts
- 3 different slopes and same intercepts
- 4 different slopes and different intercepts

6 A map with different landmarks was drawn.



A line is drawn connecting the ship with the yellow house. What is the equation of the line?

- 1 $y = -\frac{9}{2}x + 29$
- 2 $y = \frac{9}{2}x - 25$
- 3 $y = -\frac{2}{9}x + \frac{10}{3}$
- 4 $y = \frac{2}{9}x + \frac{2}{3}$

7 If the graph of $f(x)$ is a horizontal line, what is the equation of its derivative?

- 1 $f'(x) = x$
- 2 $f'(x) = 0$
- 3 $f'(x) = 1$
- 4 $f'(x) = f(x)$

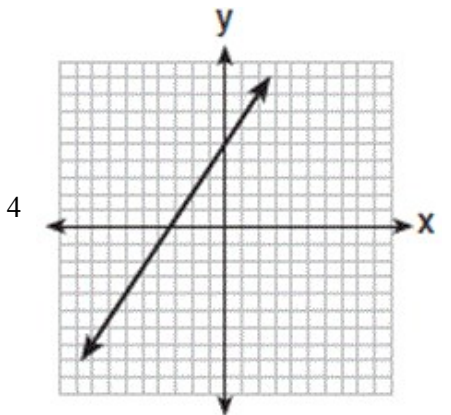
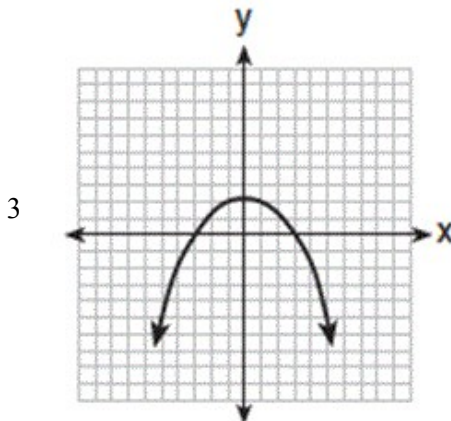
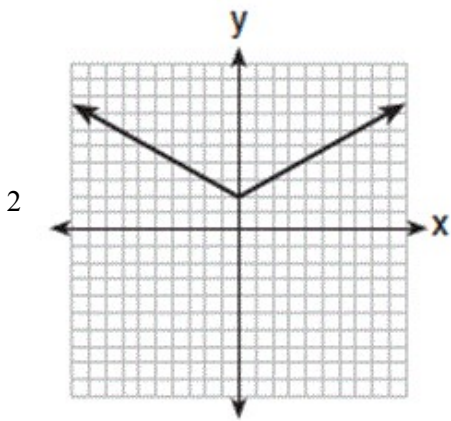
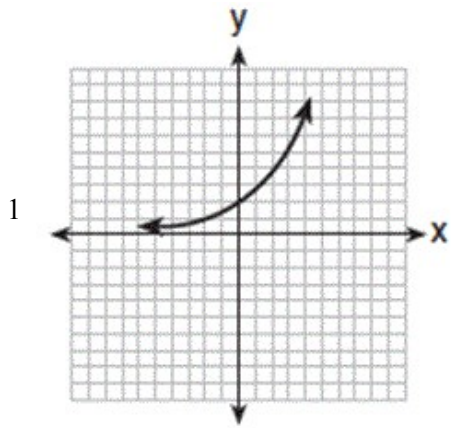
8 Solve the inequality $-3|6-x| < -15$ for x .

- 1 $x < 1$ or $x > 11$
- 2 $1 < x < 11$
- 3 $x \leq 1$ or $x \geq 11$
- 4 $1 \leq x \leq 11$

9 Which equation represents the line that passes through the point $(-3, 4)$ and is parallel to the x -axis?

- 1 $x = 4$
- 2 $x = -3$
- 3 $y = 4$
- 4 $y = -3$

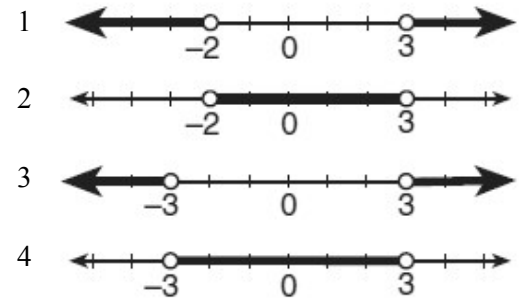
10 Which graph represents an absolute value equation?



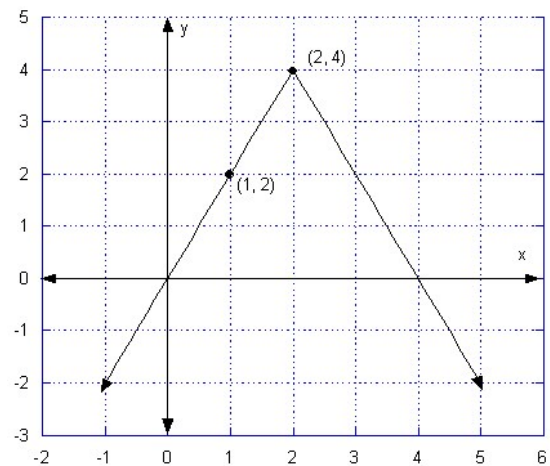
11 Which is the equation of a line that passes through the points $(-2, 6)$ and $(2, 0)$?

- 1 $y = 1.5x + 3$
- 2 $y = \frac{3}{2}x - 3$
- 3 $y = -1.5x + 3$
- 4 $y = -\frac{3}{2}x - 3$

12 What is the graph of the solution set of $|2x - 1| > 5$?



13 What is the equation of the function graphed below?

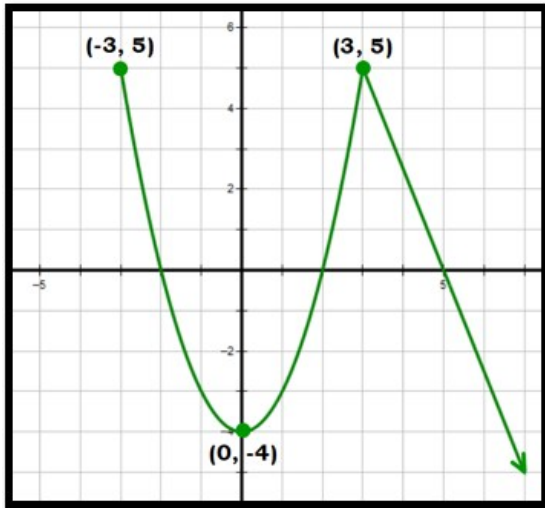


- 1 $f(x) = -|x - 2| + 4$
- 2 $f(x) = 2|-x + 2| + 4$
- 3 $f(x) = -2|x - 2| + 4$
- 4 $f(x) = -2|x + 2| + 4$

14 The inequality $|1.5C - 24| \leq 30$ represents the range of monthly average temperatures, C , in degrees Celsius, for Toledo, Ohio. Solve for C .

Answer: $\leq C \leq$

- 15 The graph of $f(x)$ is shown below. Which of the following represents the interval for the domain of $f(x)$?



- 1 $(-\infty, \infty)$
 - 2 $[-3, \infty)$
 - 3 $[5, -\infty)$
 - 4 $[0, 5]$
- 16 Solve for x : $7 - 3|2x - 1| = -20$
- 1 -5 and 4
 - 2 -4 and 5
 - 3 4 and 5
 - 4 No Solution
- 17 Which inequality is represented by the accompanying graph?



- 1 $|x+2| > 5$
- 2 $|x+3| \geq 2$
- 3 $|x-1| \leq 5$
- 4 $|x-5| \geq 2$

- 18 In which table do all the points lie on the line that has a slope of 2 and a y -intercept of -5 ?

1

x	y
-2	-10
-1	-7
2	-1
7	9

3

x	y
-3	-11
-1	-6
2	-1
7	9

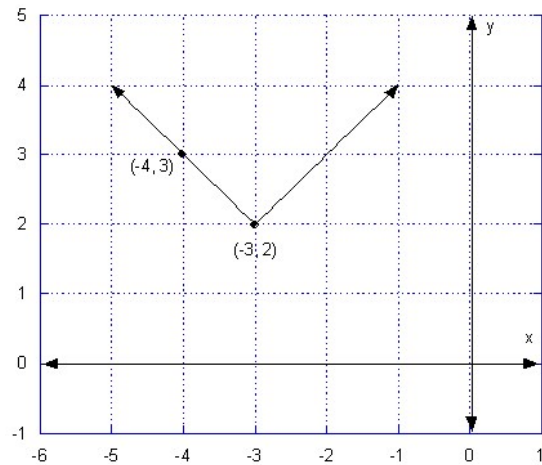
2

x	y
-3	-11
-1	-7
2	-1
7	9

4

x	y
-3	-11
-1	-7
2	-1
6	17

- 19 What is the equation of the function graphed below?



- 1 $f(x) = (x+3) + 2$
- 2 $f(x) = |x-3| + 2$
- 3 $f(x) = |x+3| - 2$
- 4 $f(x) = |x+3| + 2$

- 20 Which of the following equations listed below are linear equations?

Equation I: $P = 4s$

Equation II: $V = s^3$

Equation III: $A = \pi r^2$

- 1 Equation I, only
- 2 Equation II, only
- 3 Equations I and II
- 4 Equation II and III

21 The heights, h , of the students in the chorus at Central Middle School satisfy the inequality $\left| \frac{h-57.5}{2} \right| \leq 3.25$,

when h is measured in inches. Determine the interval in which these heights lie and express your answer to the nearest tenth of a foot.

Answer: from feet to feet

22 Which of the following is the first derivative of the function $f(x) = 4x^2 - 6x + 8$?

- 1 $f'(x) = 8x - 6$
- 2 $f'(x) = 4x - 6$
- 3 $f'(x) = 8x + h - 6$
- 4 $f'(x) = 8x + 2$





23 The graph of the equation $y = -2$ is a line

- 1 parallel to the x -axis
- 2 parallel to the y -axis
- 3 passing through the origin
- 4 passing through the point $(-2,0)$

24 Use the definition of the derivative to find the first derivative of the equation $f(x) = x^2 - 7x + 4$.

- 1 $f'(x) = 2x - 7$
- 2 $f'(x) = 2xh + h^2 - 7h$
- 3 $f'(x) = 2x + h - 1$
- 4 $f'(x) = 2x - 1$

25 Which graph represents the solution set for the expression $|2x+3| > 7$?

- 1 
- 2 
- 3 
- 4 

26 Describe the horizontal and/or vertical shifts used to transform the equation $y = |x|$ to the equation $y = |x| + 4$.

- 1 To the right 4 units
- 2 Up 4 units
- 3 Down 4 units
- 4 To the left 4 units

27 Which table represents a function?

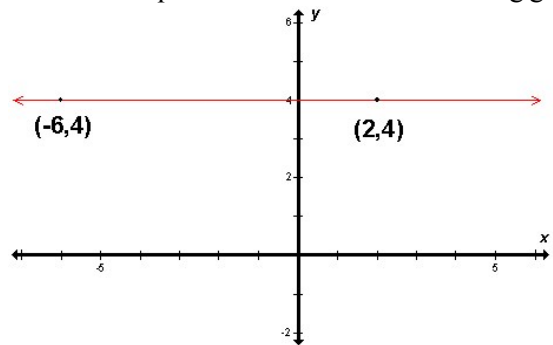
1

x	1	2	3	4
$f(x)$	7	7	7	7

2

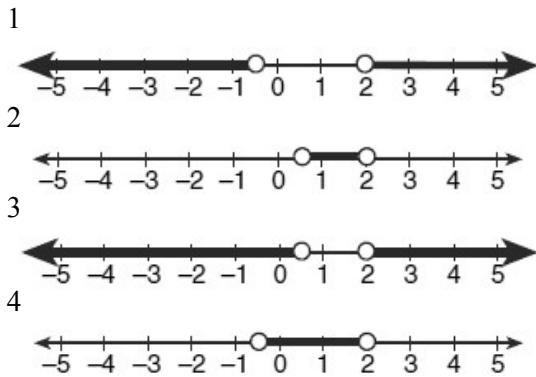
x	8	8	8	8
$f(x)$	5	6	7	8

28 What is the equation of the line in the following graph?



- 1 $x = 4$
- 2 $y = 4$
- 3 $y = -4x$
- 4 $y = 4x$

29 Which graph represents the solution set of $\left|\frac{4x-5}{3}\right| > 1$?



30 If the function $f(x) = x^3$ has the domain $\{-3, 0, 2, 4\}$, what is its range?

- 1 $\{-9, 0, 6, 12\}$
- 2 $\{-9, -3, 0, 0, 2, 4, 8, 64\}$
- 3 $\{0, 8, 9, 64\}$
- 4 $\{-27, 0, 8, 64\}$

31 If $|x - 1| = 5$, then x equals

- 1 6, only
- 2 -4, only
- 3 -4 or 6
- 4 ± 6

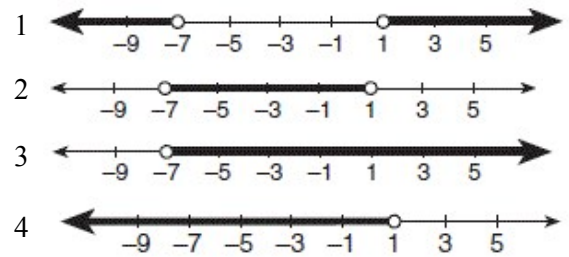
32 The solution set of $-|2x - 9| = -11$ is

- 1 $\{\}$
- 2 $\{10\}$
- 3 $\{1, 10\}$
- 4 $\{-1, 10\}$

33 If $f(n) = (n + 2)^2 - 3n$, which statement is true?

- 1 $f(-7) = 4$
- 2 $f(-5) = 64$
- 3 $f(-3) = 10$
- 4 $f(3) = 66$

34 Which graph is the solution to the inequality $4|2x + 6| - 5 < 27$?



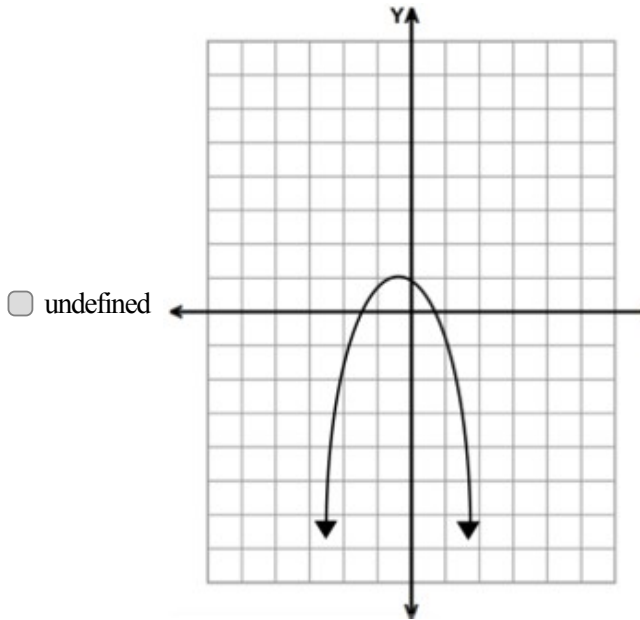
35 The set of ordered pairs below represents a relation that is a function.

$$\{(-2, 8), (4, 6), (10, 4)\}$$

Which point, when added to the set, would form a relation that is **not** a function?

- 1 $(0, 6)$
- 2 $(4, 2)$
- 3 $(-6, 8)$
- 4 $(-8, 10)$

- 36 Select all relations that also represent functions. Check the box in front of each relation to make your selection.



undefined

x	y
1	-5
2	-5
3	-5
4	-5
5	-5

undefined $\{(3, 0), (3, 1), (3, 2), (3, 3), (3, 4), (3, 5)\}$

undefined $y = 2x^2 + 3x + 1$

- 37 Which function does **not** have the set of all real numbers as its domain?

- 1 $f(x) = 5^x - 3$
- 2 $f(x) = \frac{x+1}{x+3}$
- 3 $f(x) = |2x - 1|$
- 4 $f(x) = \cos(x) + 1$

- 38 Using the definition of a derivative to find the first derivative of $f(x) = 5x^2 - 10x - 62$, which equation correctly represents the method used to find the derivative?

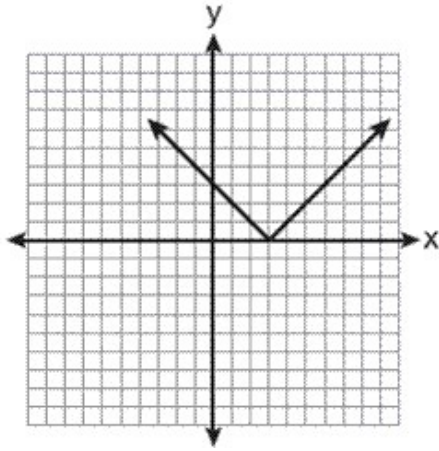
1 $f'(x) = 10(x - 1)$

2 $f'(x) = \frac{10x - 10}{h}$

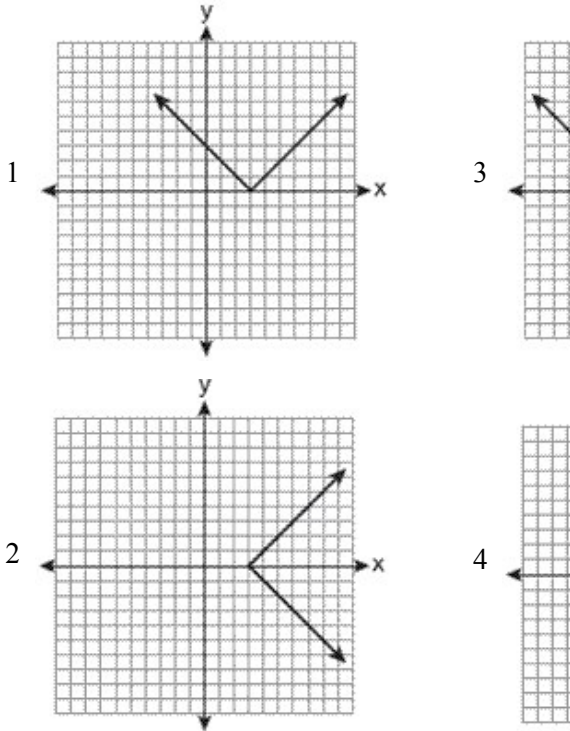
3 $f'(x) = \lim_{h \rightarrow 0} \frac{10hx + h^2 + 10h}{h}$

4 $f'(x) = \lim_{h \rightarrow 0} \frac{10xh + 10h^2 - 10h}{h}$

39 The diagram below shows the graph of $y = |x - 3|$.



Which diagram shows the graph of $y = -|x - 3|$?



40 Which of the following is an equivalent form of $y - 9 = -\frac{3}{5}(x + 10)$?

- 1 $3x + 5y = 15$
- 2 $3x - 5y = -15$
- 3 $3x + 5y = 39$
- 4 $3x - 5y = -39$

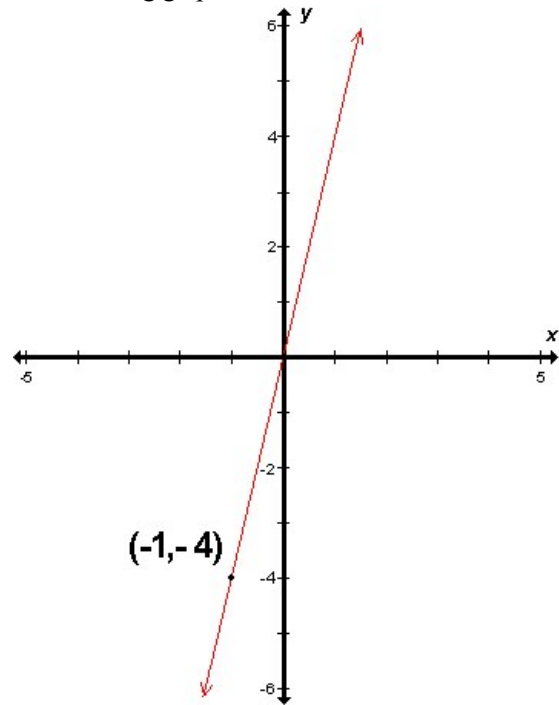
41 Which equation represents a line parallel to the line whose equation is $2x - 3y = 9$?

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

42 Find the first derivative of the function $f(x) = (x - 3)(2x - 6)$.

- 1 $f'(x) = 4x + 12$
- 2 $f'(x) = 4x$
- 3 $f'(x) = 4x^2 - 12x$
- 4 $f'(x) = 4x - 12$

43 Fill in the missing values for the equation of the line from the following graph.



$y = mx + b$

Answer: $y = \boxed{}x + \boxed{}$

44 If $f(x) = \frac{\sqrt{5x+1}}{1-x}$, then $f(7) =$

- 1 -6
- 2 -1
- 3 1
- 4 6

45 Given $f(x) = 3 + |2x - 9|$

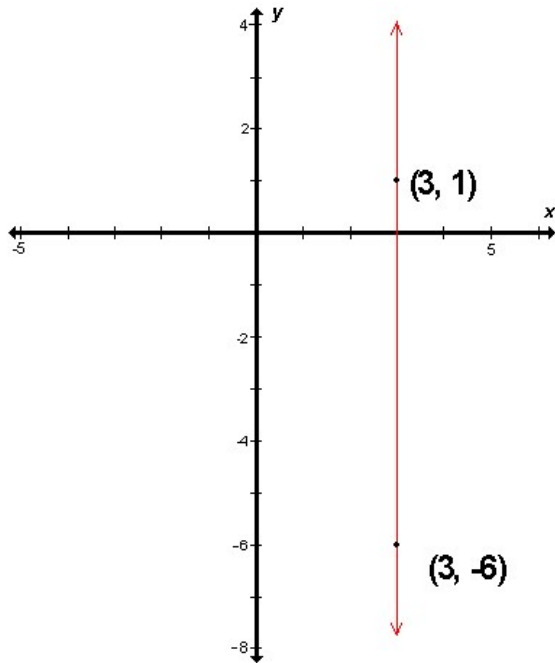
Part A: Evaluate $f(0) =$

Part B: Solve $f(x) = 0$

- 1 3
- 2 6
- 3 3 and 6
- 4 \emptyset

The correct answer to part B is choice

46 What is the equation of the line in the following graph?



- 1 $y = 3$
- 2 $y = 3x$
- 3 $x = -3$
- 4 $x = 3$

47 Which set lists the numbers that are solutions of $|x| = 4$?

- 1 $\{-4, 4\}$
- 2 $\{-4, -3, -2, -1, 0, 1, 2, 3, 4, 5\}$
- 3 $\{0, 1, 2, 3, 4\}$
- 4 $\{-3, -2, -1, 1, 2, 3\}$

48 A golfer hits a golf ball up in the air from a platform which is 10 feet above the ground. The table models the height, h , of the golf ball in feet as it travels a horizontal distance, d . Consider the graph of the coordinates below which model the balls path. Which of the following is the domain for the graph?

d	0	50	150	200	250	350	412
$h(d)$	10	45	85	90	85	45	0

- 1 $0 \leq d \leq 10$
- 2 $0 \leq d \leq 412$
- 3 $0 \leq h \leq 10$
- 4 $10 \leq h \leq 0$

49 Select all relations that also represent functions. Check the box in front of each relation to make your selection.

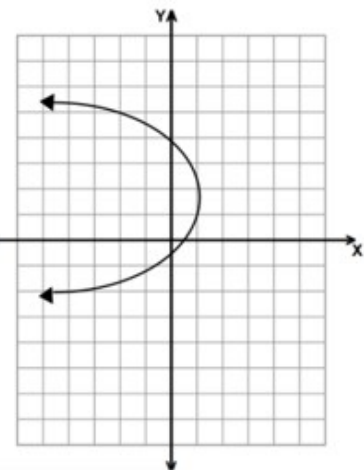
x	y
3	12
4	-16
5	20
4	16
3	-12

undefined

undefined $\{(-1, -1), (0, -1), (1, 2), (2, 2), (3, 4), (5, 8)\}$

undefined $y = -2x + 3$

undefined



50 Given $f(x) = 2x^2 + 3x - 8$. Which expression below is equivalent to the definition of the derivative of this function?

1 $f'(x) = \lim_{h \rightarrow 0} \frac{4xh + 5h}{h}$

2 $f'(x) = \lim_{h \rightarrow 0} \frac{4xh + 2h^2 + 3h}{h}$

3 $f'(x) = \lim_{h \rightarrow 0} \frac{4x + 2h + 3}{h}$

4 $f'(x) = \lim_{h \rightarrow 0} \frac{4xh^2 + 2h^3 + 3h^2}{h}$