1

x	-4	0	6
$f(x)$	-4	-1	k

In the table above, if $f(x)$ is a linear function, what is the value of k ?

A) 2.5

B) 3

C) 3.5

D) 4

2

The graph of a line in the xy-plane has slope $\dfrac{1}{3}$ and contains the point $(9,1)$. The graph of a second line passes through the points $(-2,4)$ and $(5,-3)$. If the two lines intersect at (a,b), what is the value of $a+b$?

A) –2

B) 2

C) 4

D) 6

3

Which of the following expressions is equal to 0 for some value of x ?

A) $5+|x+5|$

B) $5+|x-5|$

C) $-5+|x+5|$

D) $-5-|x-5|$

4

Line ℓ in the xy-plane contains points from each of the Quadrants I, III, and IV, but no points from Quadrant II. Which of the following must be true?

A) The slope of line ℓ is zero.

B) The slope of line ℓ is undefined.

C) The slope of line ℓ is positive.

D) The slope of line ℓ is negative.

5

x	-3	-1	1	5
$f(x)$	9	5	1	-7

The table above shows some values of the linear function f. Which of the following defines f ?
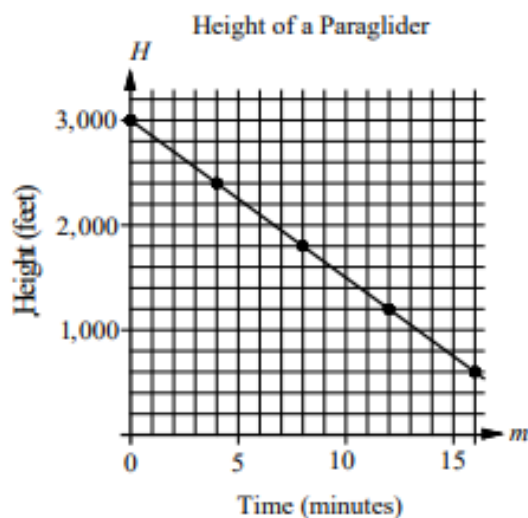
A) $f(x)=2x-3$

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

C) $f(x)=2x-1$

D) $f(x)=-2x+1$

6

If $f(x)=-6x+1$, what is $f(\frac{1}{2}x-1)$ equal to?

A) $-3x+7$

B) $-3x-5$

C) $-3x+1$

D) $-3x-1$

Questions 7 and 8 refer to the following information.

Height of a Paraglider

The graph above shows the relationship between the height of paraglider H, in feet, and time m, in minutes.

7

Which of the following represents the relationship between H and m?

A) $H = -100m + 3000$

B) $H = -150m + 3000$

C) $H = -175m + 3000$

D) $H = -225m + 3000$

8

If the height of the paraglider is 1,350 feet, which of the following best approximates the time the paraglider has been flying?

A) 10 minutes

B) 10 minutes and 30 seconds

C) 11 minutes

D) 11 minutes and 30 seconds

9

A line in the xy-plane passes through the point $(1, -2)$ and has a slope of $\frac{1}{3}$. Which of the following points lies on the line?

A) $(3, -2)$

B) $(2, -\frac{4}{3})$

C) $(0, -2)$

D) $(-1, -\frac{8}{3})$

10

What is the slope of the function:

$$2y - 3 = 8x + 13$$

A) 8

B) 2

C) 3

D) 4

11

x	$f(x)$
1	5
3	13
5	21

Some values of the linear function f are shown in the table above. Which of the following defines f?

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

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

C) $f(x) = 4x + 1$

D) $f(x) = 5x$

12

Which of the following systems of equations has infinitely many solutions?

A) $x+y=1$

$\quad x-y=1$

B) $-2x+y=1$

$\quad -2x+y=5$

C) $\frac{1}{2}x-\frac{1}{3}y=1$

$\quad 3x-2y=6$

D) $2x+3y=1$

$\quad 3x-2y=1$

13

Which of the following equations represents a line that is parallel to the line with equation $y=-\frac{1}{2}x+5$ and contains the point $(-2,\frac{1}{2})$?

A) $x-2y=-3$

B) $x+2y=-1$

C) $2x-y=-5$

D) $2x+y=-3$

14

Which of the following equations represents a line that passes through $(7,6)$ and is parallel to the x-axis?

A) $x=6$

B) $y=7$

C) $y=7$

D) $y=6$

15

Which of the following equations represents a line that passes through $(-5,1)$ and is parallel to the y-axis?
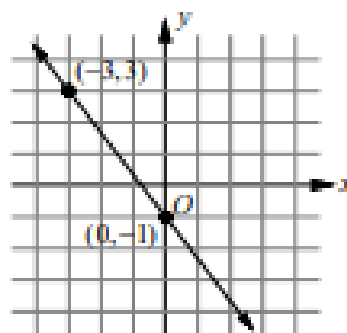
A) $y=-5$

B) $y=1$

C) $x=-5$

D) $x=1$

16

What is the rate of change shown in the graph of the line above?

A) $-\frac{4}{3}$

B) $-\frac{3}{4}$

C) $\frac{3}{4}$

D) $\frac{4}{3}$

17

x	−3	0	3	6
y	−1	1	3	5

What is the average rate of change for the relation shown in the table above?

A) $\dfrac{1}{3}$

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

C) $\dfrac{2}{3}$

D) $\dfrac{5}{6}$

18

The graph of the linear function f passes through the points $(a,1)$ and $(1,b)$ in the xy- plane. If the slope of the graph of f is 1, which of the following is true?

A) $a-b=1$

B) $a+b=1$

C) $a-b=2$

D) $a+b=2$

19

What is the domain of the function that contains points at $(-5,2)$, $(-2,1)$, $(0,2)$, and $(4,-3)$?

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

B) $\{-2,\ 1,\ 0\}$

C) $\{-5,\ -2,\ 1,\ 2\}$

D) $\{-5,\ -2,\ 0,\ 4\}$

20

If point $(7,b)$ is in Quadrant I and point $(a,-3)$ is in Quadrant III, in which Quadrant is the point (a,b)?

A) Quadrant I

B) Quadrant II

C) Quadrant III

D) Quadrant IV

21

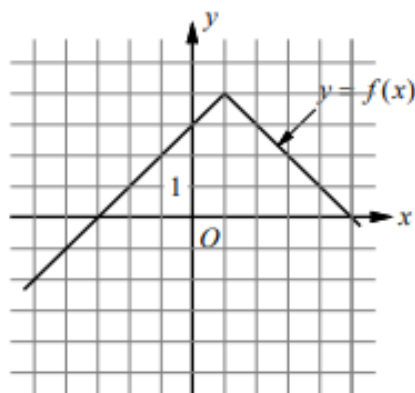Which of the following expressions is equal to −1 for some values of x ?

A) $|1-x|+6$

B) $|1-x|+4$

C) $|1-x|+2$

D) $|1-x|-2$

22

For what value of x is $|3x-5|=-1$?

A) −2

B) −1

C) 0

D) There is no such value of x.

23

The graph of the function f is shown in the xy- plane above. For what value of x is the value of $f(x)$ at its maximum?

A) –3

B) –1

C) 1

D) 3

25

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

24

Solve the absolute value equation.

$$x - 2|1 - x| = x - 16$$

A) $\{-7, 9\}$

C) $\{7, -9\}$

B) $\{9\}$

D) ∅

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