



Coordinate Algebra EOC (GSE) Quiz Answer Key

Functions - (MGSE9-12.F.IF.6) Calculate And Interpret

Student Name: _____

Date: _____

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Score: _____

1)

x	y
0	2
2	4
3	5
4	6

Choose the algebraic equation that matches the table.

- A) $y = x + 2$
- B) $y = x - 2$
- C) $y = -x + 2$
- D) $y = -x - 2$

Explanation:

The solution is $y = x + 2$. The y-values are 2 more than the x-values.

2)

x	y
0	2
1	7
2	12
3	17
4	22

Which equation matches the function described by the table?

- A) $y = 5x$
- B) $y = x + 2$
- C) $y = 5x + 2$
- D) $y = 6x - 1$

Explanation:

The solution is $y = 5x + 2$. Each y-value is 2 more than 5 times the corresponding x-value.

3)

x	y
0	5
1	8
2	11
3	14
4	17

Which equation matches the function represented by the table?

- A) $y = 3x$
- B) $y = x + 5$
- C) **$y = 3x + 5$**
- D) $y = x + 11$

Explanation:

The solution is $y = 3x + 5$. Each y-value in the table is 5 more than 3 times the corresponding x-value.

4)

x	y
0	8
2	10
3	11
4	12

Choose the algebraic equation that matches the table.

- A) $y = x + 2$
- B) $y = x - 8$
- C) **$y = x + 8$**
- D) $y = -x + 8$

Explanation:

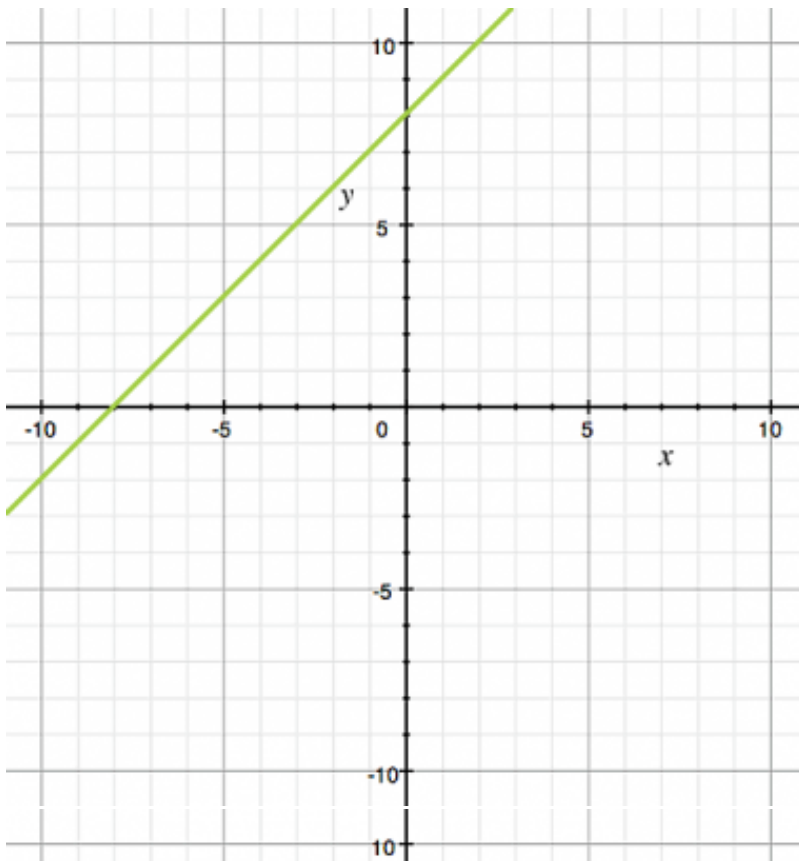
The solution is $y = x + 8$. The y-values are 8 more than the x-values.

5)

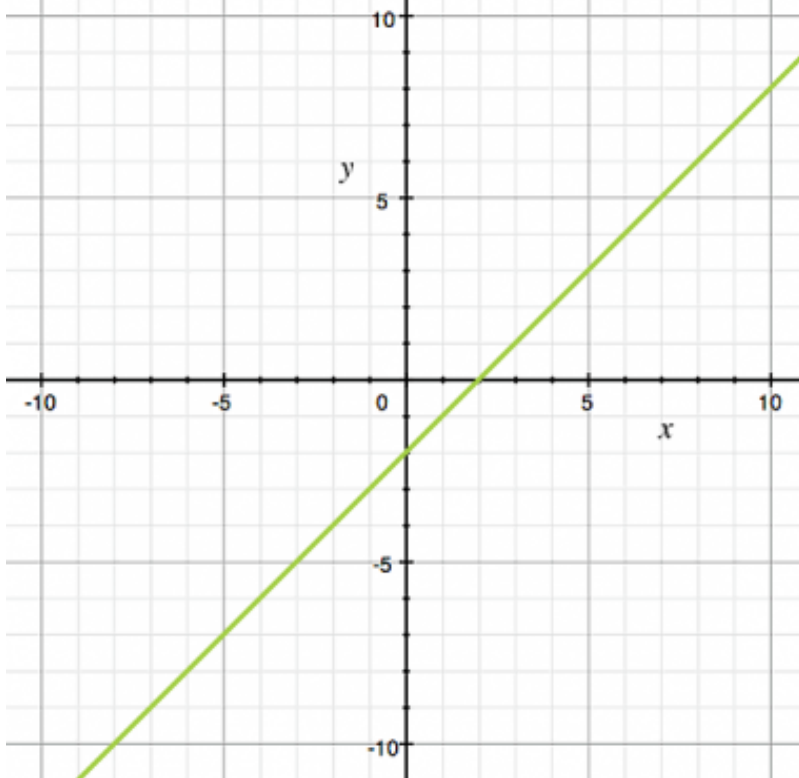
x	y
0	-2
2	0
3	1
4	2

Which graph represents the table?

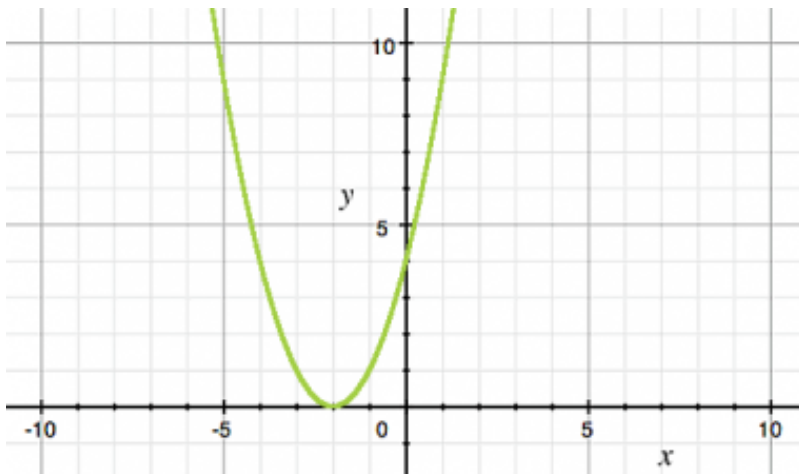
A)



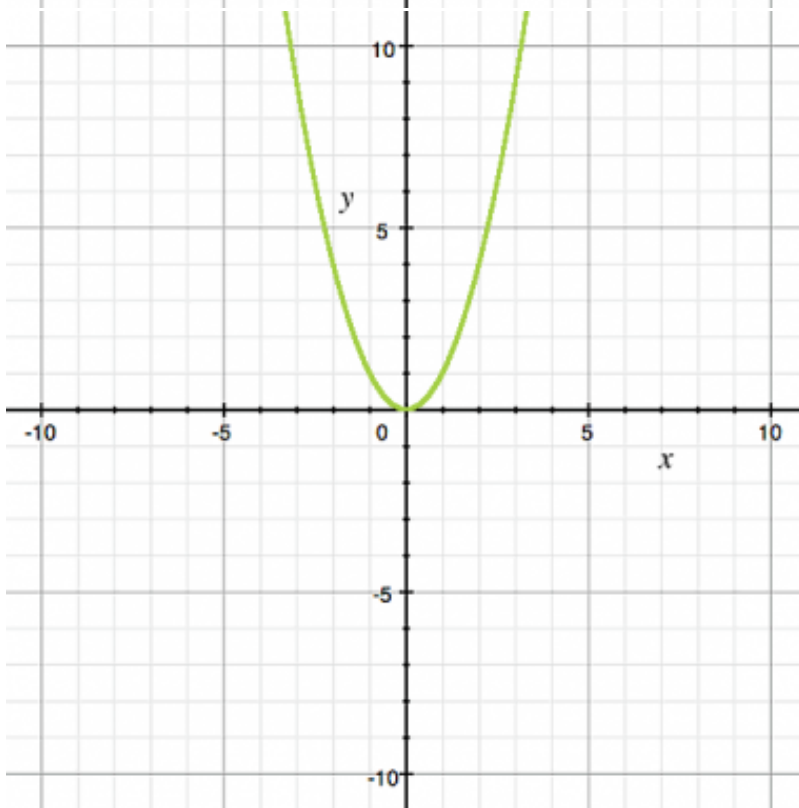
B)



C)



D)



Explanation:

The solution is **B**. The y-values are 2 less than the x-values.

6)

x	y
0	-2
2	0

3	1
4	2

Choose the algebraic equation that matches the table.

- A) $y = x - 3$
- B) $y = x + 2$
- C) **$y = x - 2$**
- D) $y = -x - 2$

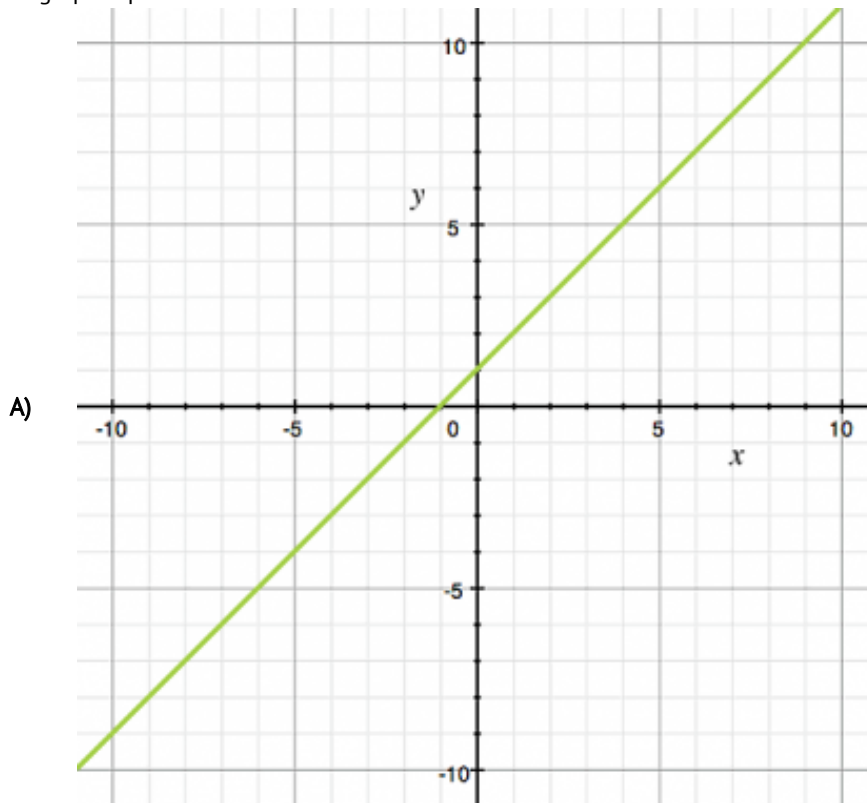
Explanation:

The solution is **$y = x - 2$** . The table shows that the y-values are 2 less than the x-values.

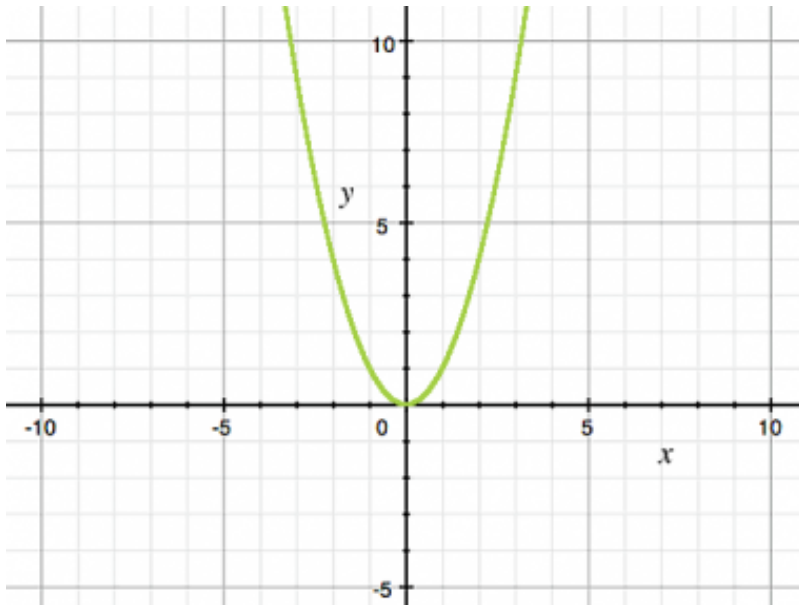
7)

x	y
0	1
1	2
2	3
3	4
4	5

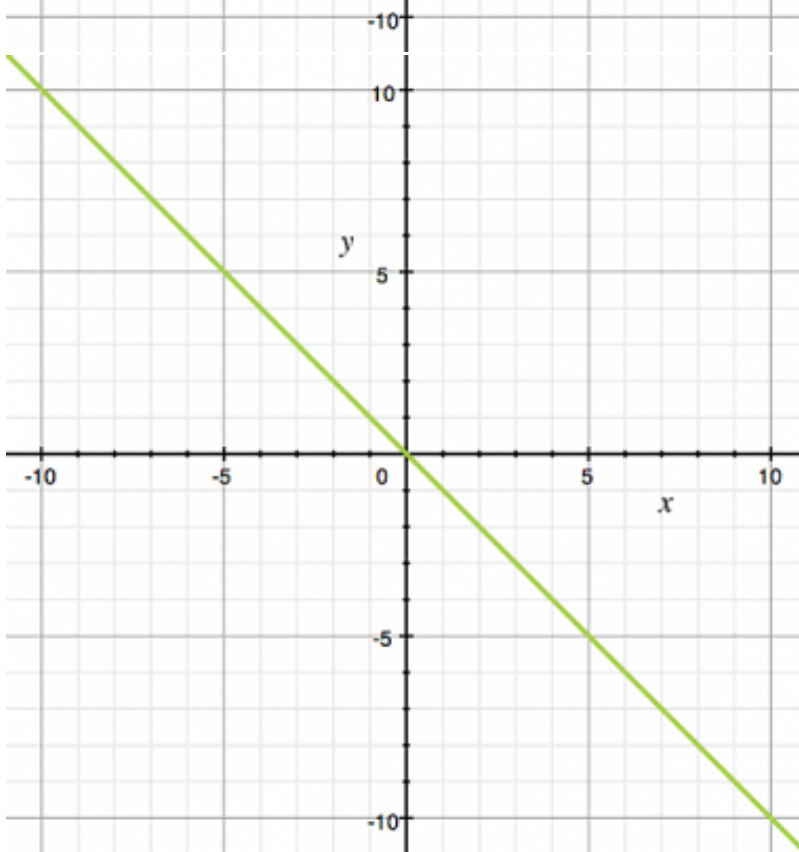
Which graph represents the function described in the table?



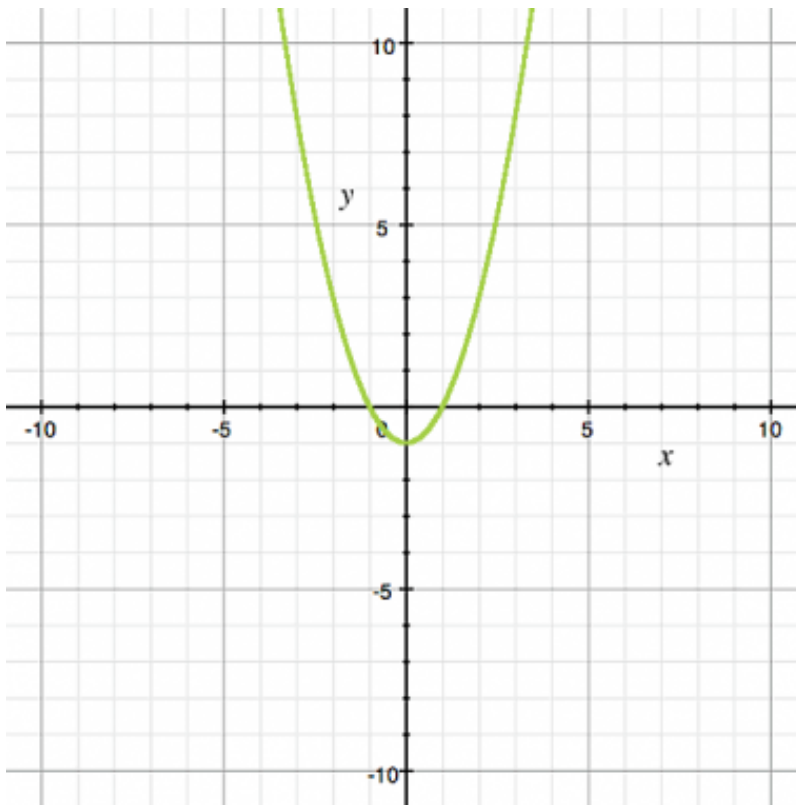
B)



C)



D)

**Explanation:**

The solution is **A**. The function described in the table is $y=x+1$.

8)

x	y
0	1
1	-3
2	-7
3	-11
4	-15

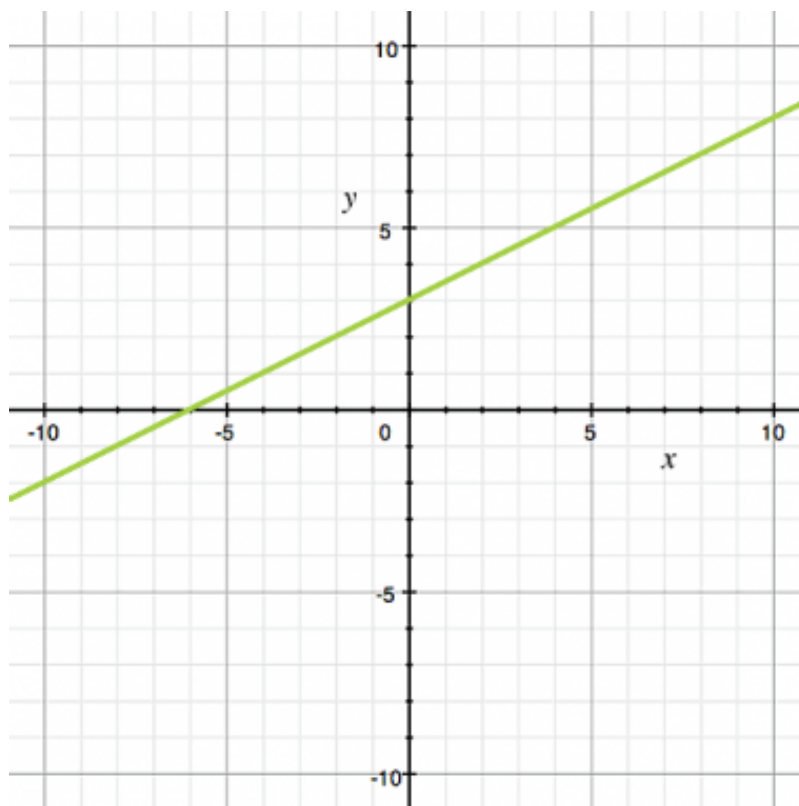
Which equation matches the function described in the table?

- A) $y = x - 4$
- B) $y = 4x - 1$
- C) $y = -4x + 1$
- D) $y = -3x - 2$

Explanation:

The solution is $y = -4x + 1$. Each y-value in the table is 1 more than -4 times the corresponding x-value.

9)



Tom and Philip were given the graph of a linear function and asked to find the slope. Tom says that the slope is $\frac{1}{2}$ while Philip says that the slope is 2.

Which reason correctly justifies Tom's answer?

- A) Slope is found by $\frac{\text{run}}{\text{rise}}$ so if you pick two points on the graph you have to count 1 unit to the right and then 2 units up.
- B) Slope is found by $\frac{\text{run}}{\text{rise}}$ so if you pick two points on the graph you have to count 2 units to the left and then 1 unit down.

- C) Slope is found by $\frac{\text{run}}{\text{rise}}$ so if you pick two points on the graph you have to count 1 unit to the right and then 2 units down.
- D) Slope is found by $\frac{\text{rise}}{\text{run}}$ so if you pick two points on the graph then you have to count 1 unit up and then 2 units to the right.

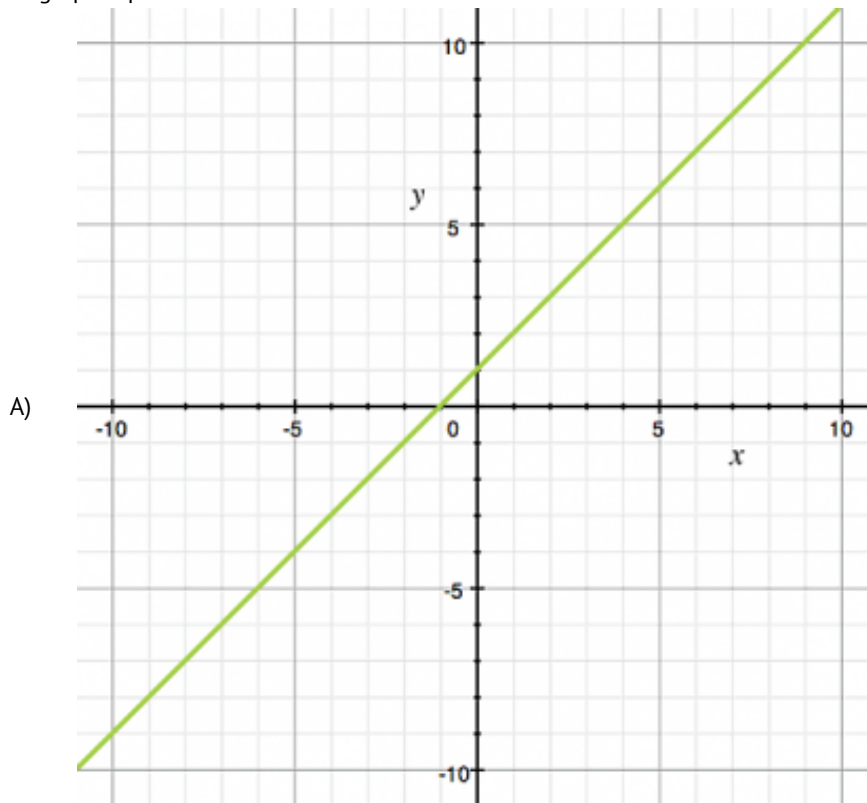
Explanation:

The correct answer is **Slope is found by $\frac{\text{rise}}{\text{run}}$ so if you pick two points on the graph then you have to count 1 unit up and then 2 units to the right.** Slope is the vertical change over the horizontal change or $\frac{\text{rise}}{\text{run}}$. So to find the slope on a graph you want to count how many units you must go up or down and then how many units you must go left or right. Since Tom's slope was positive you needed two positive directions (up and right) or 2 negative directions (down and left).

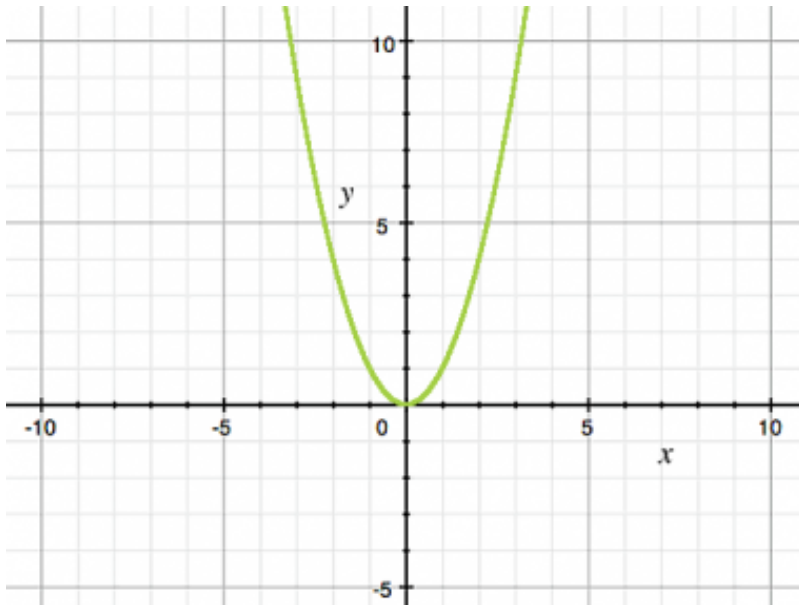
10)

x	y
-2	2
-1	1
0	0
1	-1
2	-2

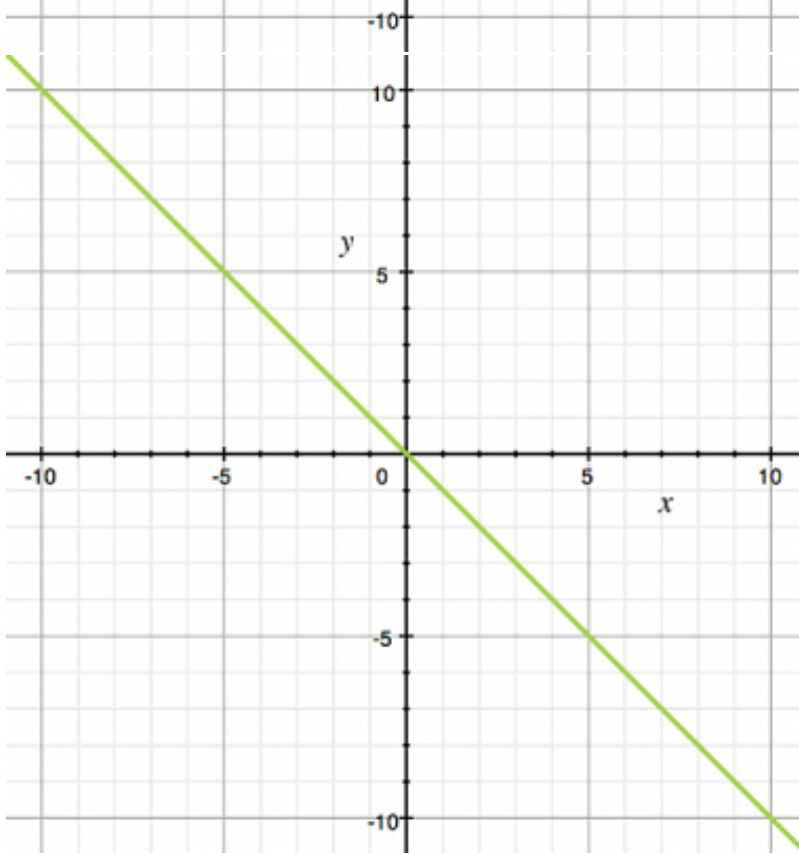
Which graph represents the function described in the table?



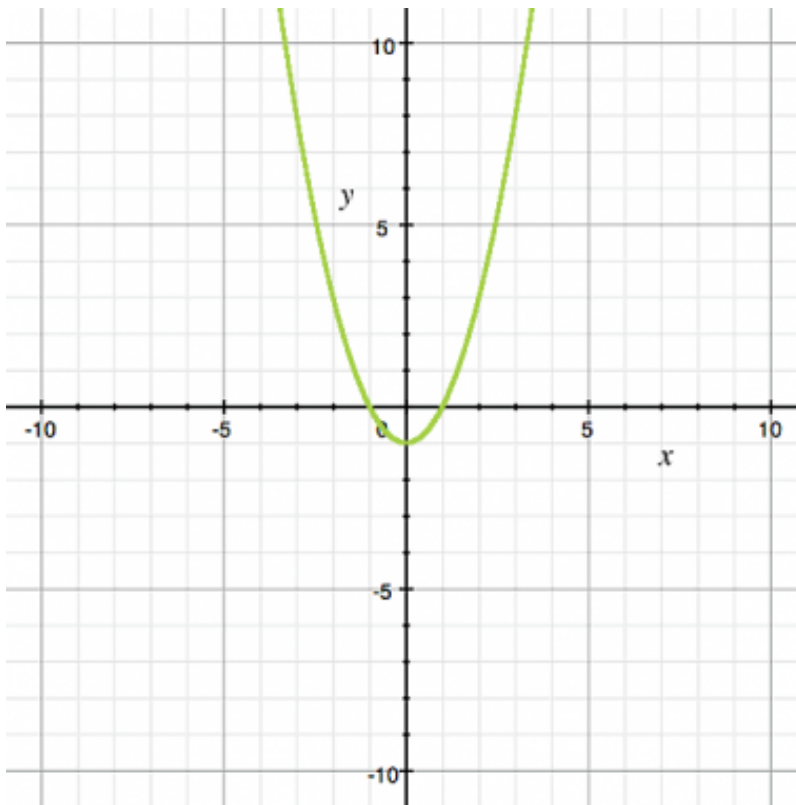
B)



C)



D)

**Explanation:**

The solution is C. The function described in the graph is $y = -x$.

11)

x	y
0	-1
1	3
2	7
3	11
4	15

Which equation matches the function described in the table?

- A) $y = 4x$
- B) $y = x - 1$
- C) $y = x + 5$
- D) $y = 4x - 1$

Explanation:

The solution is $y = 4x - 1$. Each y-value in the table is 1 less than 4 times the corresponding x-value.

12) Which table represents the function $y = 2x + 4$?

A)

x	y
-2	0
0	4
2	0

B)

x	y
-2	8
0	4
2	8

C)

x	y
-2	0
0	4
2	8

D)

x	y
-2	8
0	4
2	6

Explanation:

The correct table is **Table C**. Plug the x-values into the given function and determine which one of the tables gives the correct values.

13)

A.	
x	y
1	1
2	4
3	9

B.	
x	y
1	2
2	5
3	10

C.	
x	y
1	3
2	6
3	9

D.	
x	y
1	0
2	3
3	8

Which table can be represented by a line?

- A)
- B)
- C)**
- D)

Explanation:

The solution is **C**. The linear equation that represents table C is $y = 3x$.

14)

x	y
0	3
1	1
2	-1

Which equation represents the data in the table shown?

- A) $y = -2x$
- B) $y = 2x + 3$
- C) $y = -2x + 3$**
- D) $y = -2x - 3$

Explanation:

The correct answer is **$y = -2x + 3$** . When you substitute the x values into the equations they work in the equation $y = -2x + 3$. $-2(0) + 3 = 3$ $-2(1) + 3 = 1$ $-2(2) + 3 = -1$.

15) Which table shows the function $y = -2x + 4$?

A)

x	y
0	4
1	2
2	0

B)

x	y
1	25
2	26
3	27

C)

x	y
0	-4
1	-2
2	0

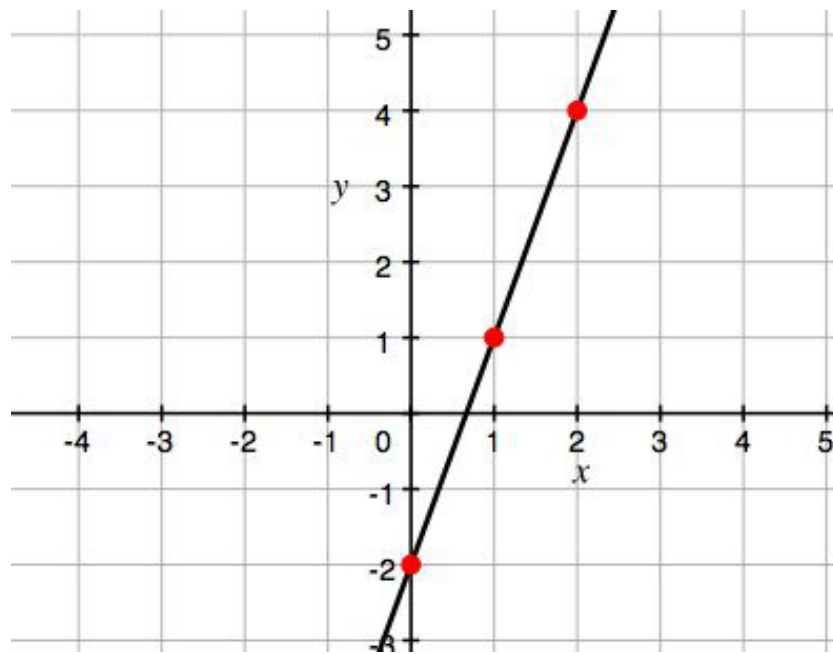
D)

x	y
-1	6
-2	8
-3	12

Explanation:

The correct table is A. Plug the x-values into the given function and determine which one of the tables gives the correct values.

16)



What is the slope of the line?

- A) -3
- B) $-\frac{1}{3}$
- C) $\frac{1}{3}$
- D) 3

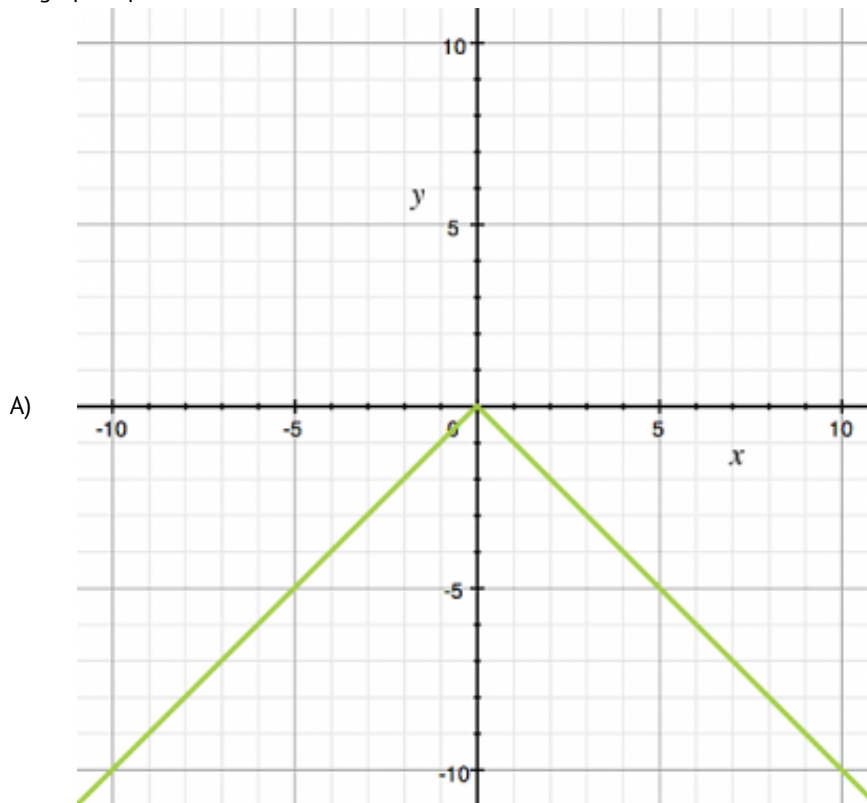
Explanation:

The slope of the line above is **3**. Slope can be found graphically by taking the rise(**+3**) and dividing it by the run(**+1**).

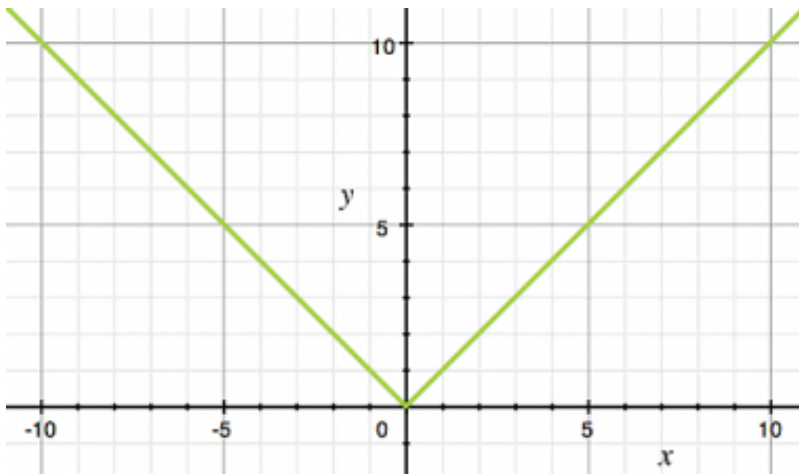
17)

x	y
-2	3
-1	3
0	3
1	3
2	3

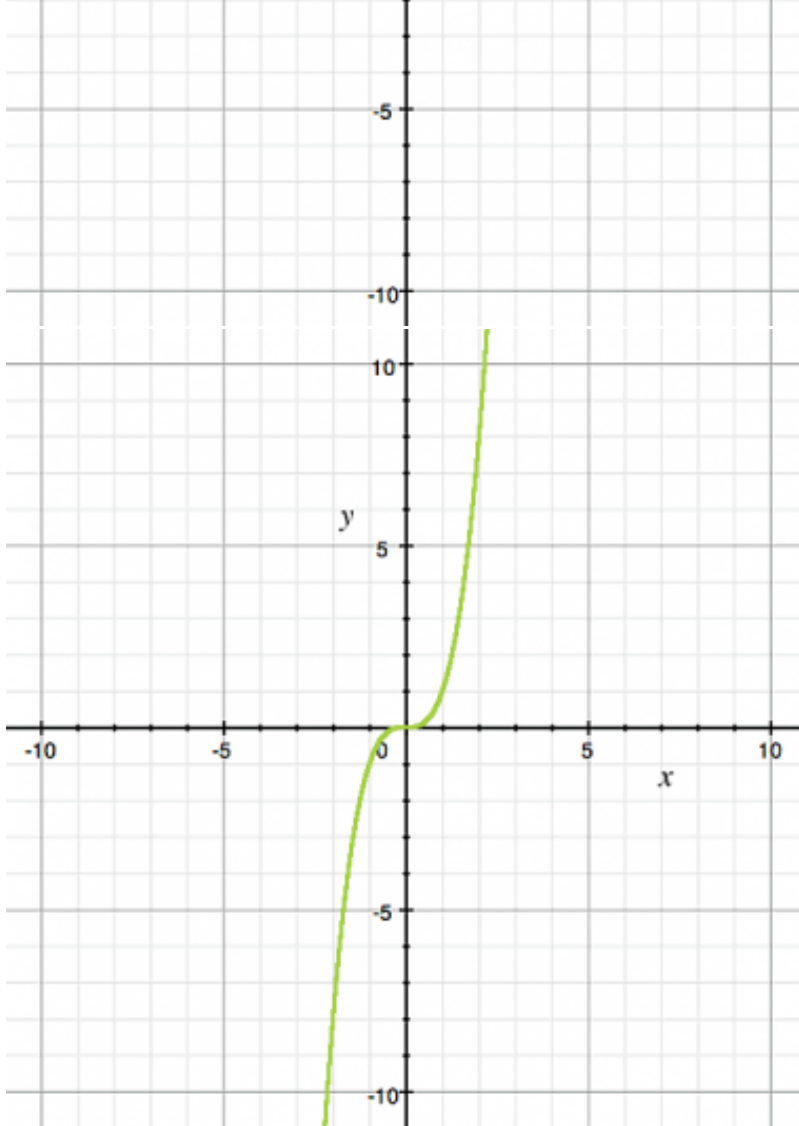
Which graph represents the function described in the table?



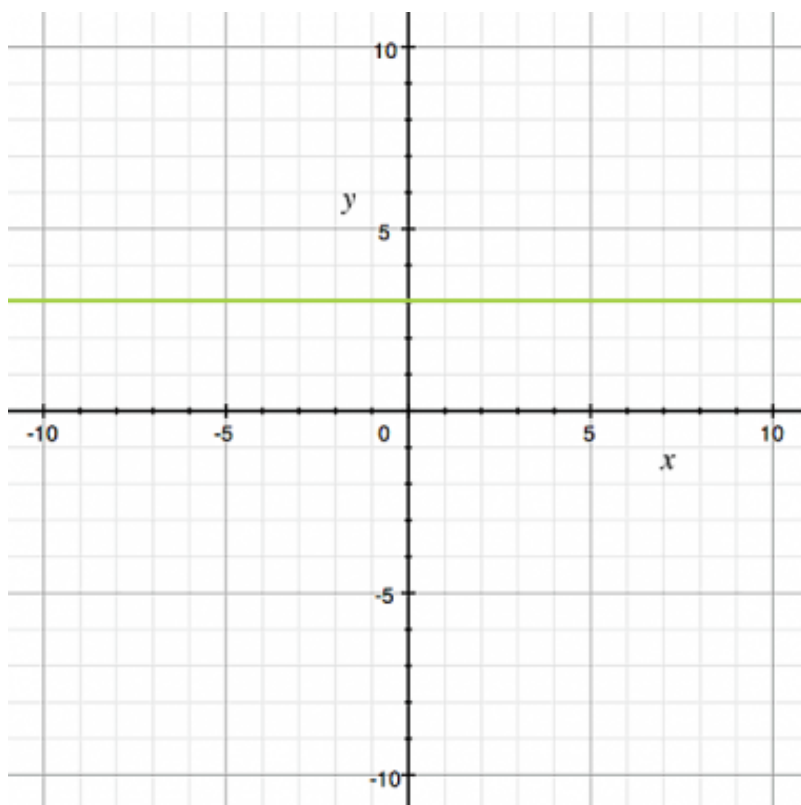
B)



C)



D)

**Explanation:**

The solution is **D**. The function described in the table is $y=3$.

18)

A.

x	y
1	2
2	8
3	18

B.

x	y
1	4
2	24
3	36

C.

x	y
1	3
2	12
3	27

D.

x	y
1	3
2	5
3	7

Which table can be represented by a line?

- A)
- B)
- C)
- D)**

Explanation:

The solution is **D**. The linear equation that matches table D is $y = 2x + 1$.

19)

End of day	Distance from home
1	383
2	682
3	1132
4	1503
5	1906
6	2196

In the table, Adam recorded the miles he traveled each day while traveling from Florida to California. Calculate the average rate of change between day 4 and day 6.

- A) 231 miles
- B) 290 miles
- C) 347 miles**
- D) 440 miles

Explanation:

346.5 miles

$$\frac{\Delta f(x)}{\Delta x} = \frac{2196 - 1503}{6 - 4} = \frac{693}{2} = 346.5$$

20) Calculate the average rate of change of $f(x) = 3x^2 + 2x + 1$ for $2 \leq x \leq 4$.

- A) 10
- B) 20**
- C) 37
- D) 40

Explanation:

20

$$f(x) = 3x^2 + 2x + 1 \text{ for } 2 \leq x \leq 4$$

$$f(2) = 17$$

$$f(4) = 57$$

$$\frac{\Delta f(x)}{\Delta x} = \frac{57 - 17}{4 - 2} = \frac{40}{2} = 20$$

21) For every 6 boxes sold, Stephanie makes a profit of \$8.10. Which table shows this same rate of change?

A

Number of Boxes	Profit
15	\$20.25
17	\$22.95
19	\$25.65
21	\$28.35

B

Number of Boxes	Profit
8	\$10.80
10	\$12.15
12	\$13.50
14	\$14.85

C

Number of Boxes	Profit
15	\$13.25
17	\$18.95
19	\$21.65
21	\$24.35

D

Number of Boxes	Profit
8	\$14.85
10	\$16.20
12	\$17.55
14	\$18.90

- A) A
 B) B
 C) C
 D) D

Explanation:

For every 1 box sold, Stephanie makes a profit of \$1.35. **Table A** shows this same rate.

22) Between $x = 0$ and $x = 1$, which function has a greater average rate of change than $y = 3^x$?

- A) $y = -8x + 2$
 B) $y = 5x + 2$
 C) $y = 4^{-x}$
 D) $y = -5^x$

Explanation:

$$\text{average rate of change} = \frac{\Delta y}{\Delta x}$$

The average rate of changes for each of the functions between 0 and 1 is -8 , 5 , $-\frac{3}{4}$, and -6 . The average rate of change of $y = 3^x$ is 2 .

Therefore the largest average rate of change is 5 , which is the function $y = 5x + 2$

23) Between $x = 2$ and $x = 3$, which function has the largest average rate of change?

- A) $y = 6^{x-1}$
 B) $y = 7^{x-2}$
 C) $y = 4^{x+1}$
 D) $y = 4^{x-1}$

Explanation:

$$\text{average rate of change} = \frac{\Delta y}{\Delta x}$$

The average rate of change from $x = 2$ to $x = 3$ of the four functions are 12 , 192 , 30 , 6 Therefore the function with the largest average rate is $y = 4^{x+1}$ with an average rate of change of 192 .

24) Between $x = 2$ and $x = 3$, which function has a smaller average rate of change than $y = 2^x$?

- A) $y = 5^{x-2}$
 B) $y = 4^{x-1}$
 C) $y = \frac{2}{3}^{-x}$
 D) $y = \frac{1}{2}^{-x+1}$

Explanation:

$$\text{average rate of change} = \frac{\Delta y}{\Delta x}$$

The average rate of change from $x = 2$ to $x = 3$ of $y = 2^x$ is 4. Therefore the function with a smaller average rate is $y = 5^{x-2}$. Its average rate of change is $\frac{9}{8}$.

25) Calculate the average rate of change of $f(x) = \frac{x^2}{4} - 5$ for $3 \leq x \leq 5$.

- A) -2
 B) $-\frac{4}{3}$
 C) $\frac{4}{3}$
 D) 2

Explanation:

2

$$f(x) = \frac{x^2}{4} - 5 \text{ for } 3 \leq x \leq 5$$

$$f(3) = -\frac{11}{4}$$

$$f(5) = \frac{5}{4}$$

$$\frac{\Delta f(x)}{\Delta x} = \frac{\frac{5}{4} - \left(-\frac{11}{4}\right)}{5 - 3} = \frac{4}{2} = 2$$