



Coordinate Algebra EOC (GSE) Quiz Answer Key

Functions - (MGSE9-12.F.IF.7) Graph Functions

Student Name: _____

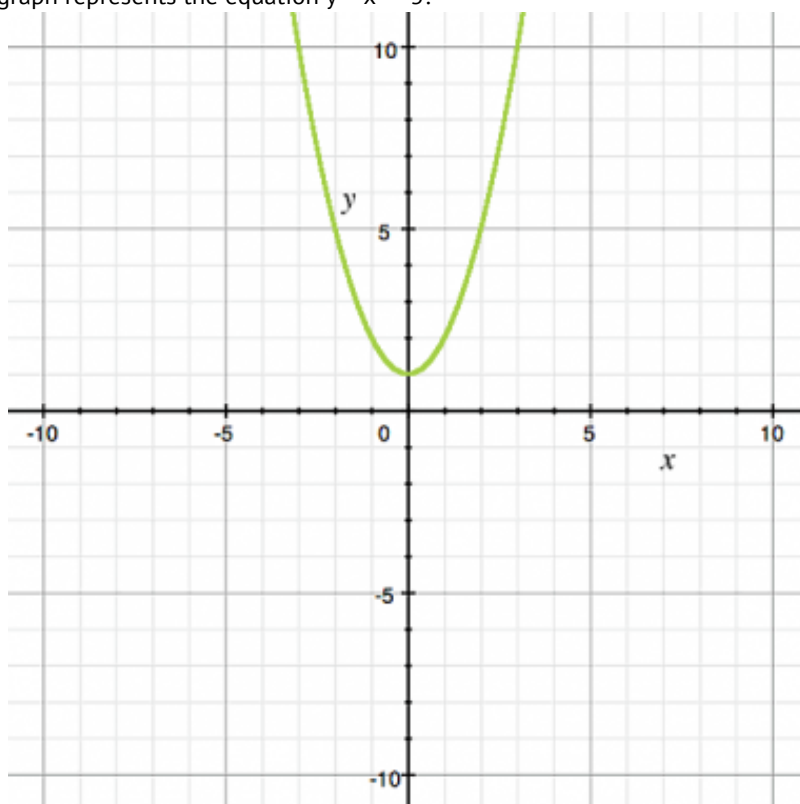
Date: _____

Teacher Name: THUYNGA DAO

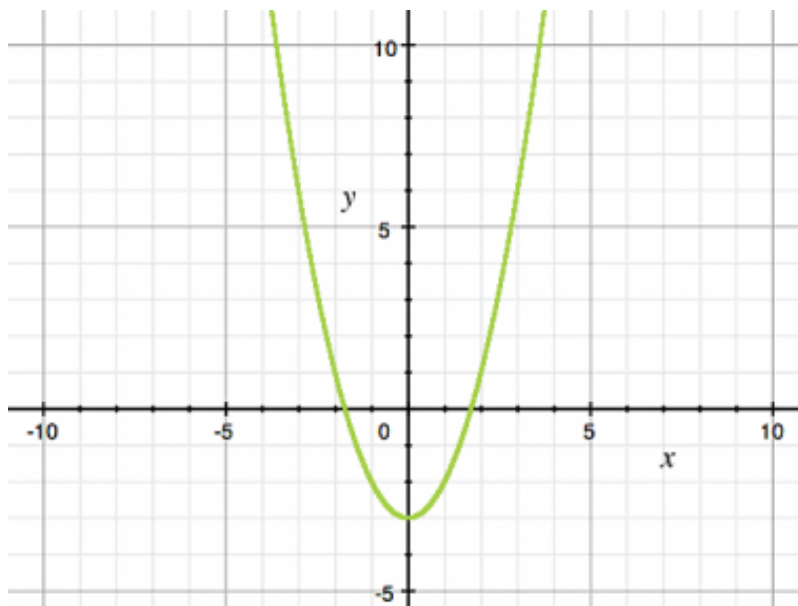
Score: _____

1) Which graph represents the equation $y = x^2 - 3$?

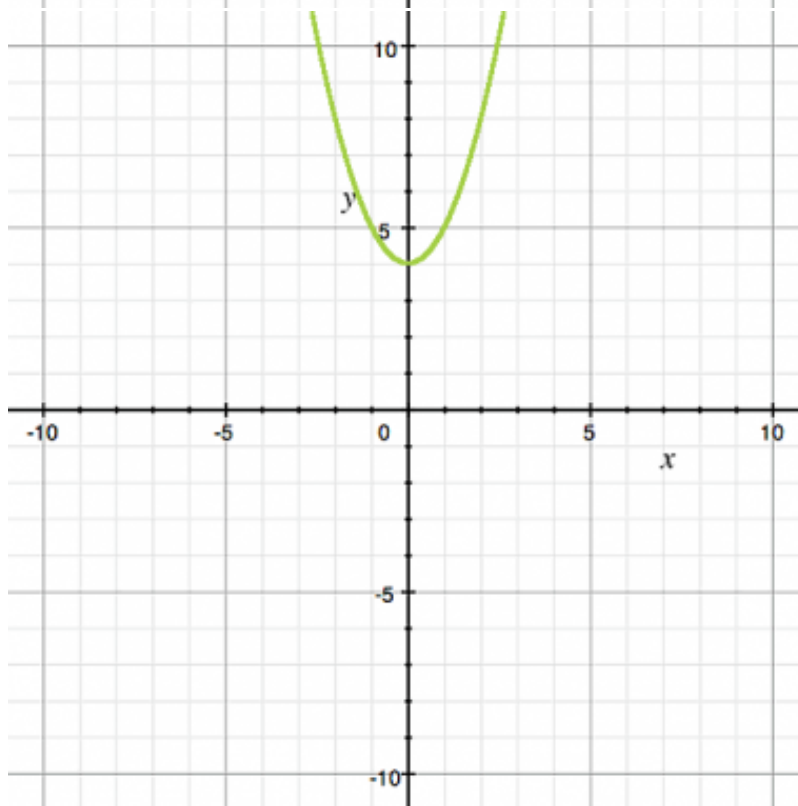
A)



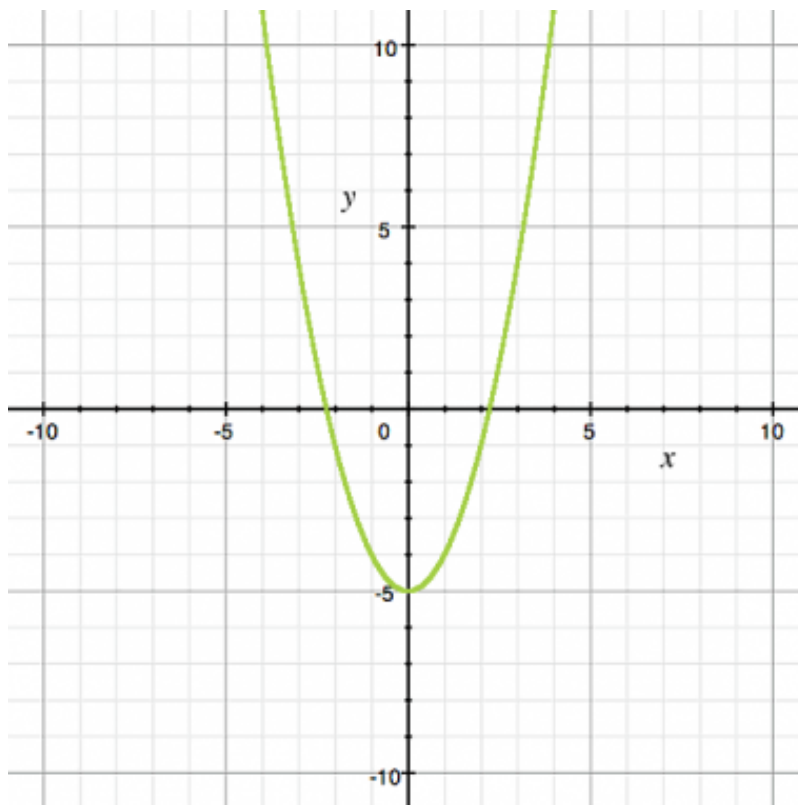
B)



C)



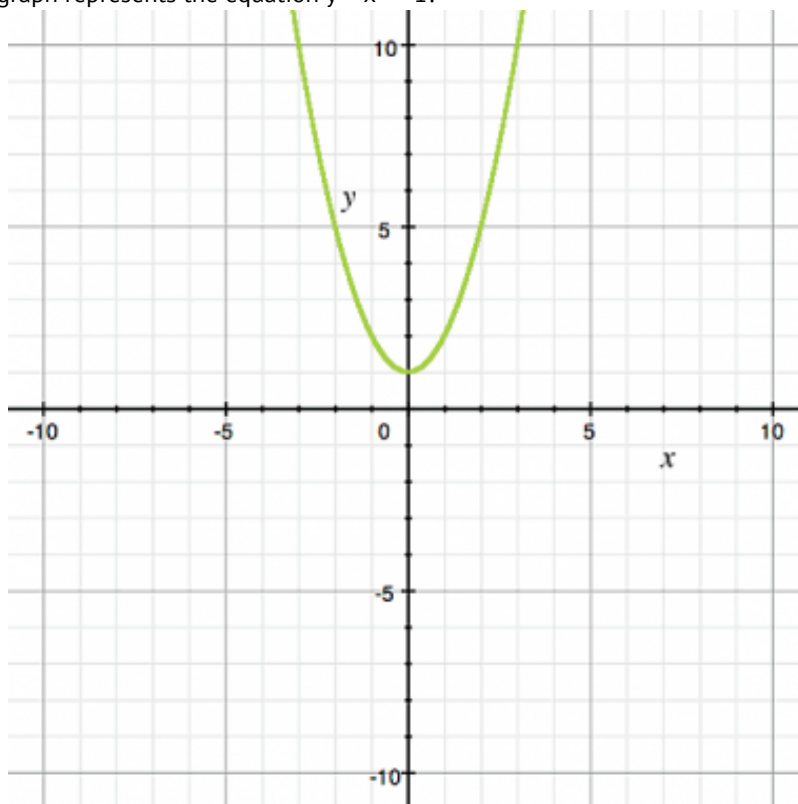
D)

**Explanation:**

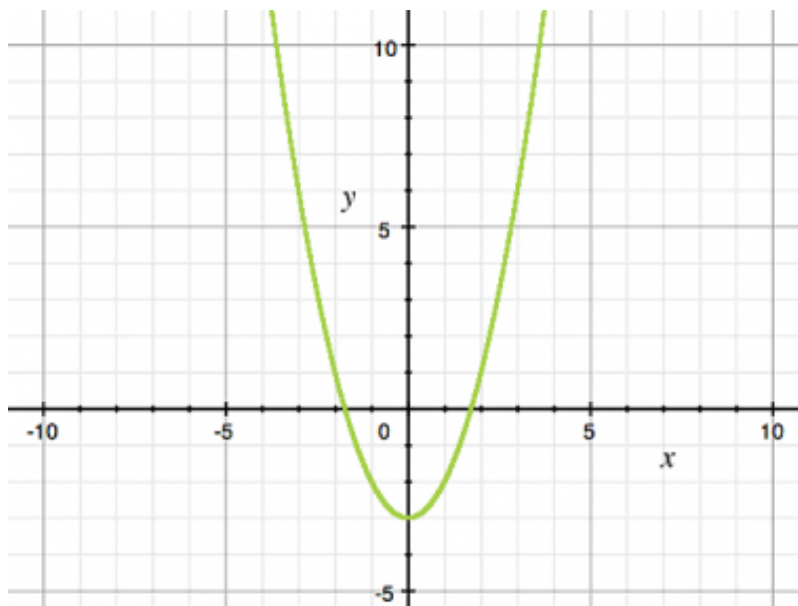
Solution: **B.** The graph shown in choice B has been shifted down 3 units.

2) Which graph represents the equation $y = x^2 + 1$?

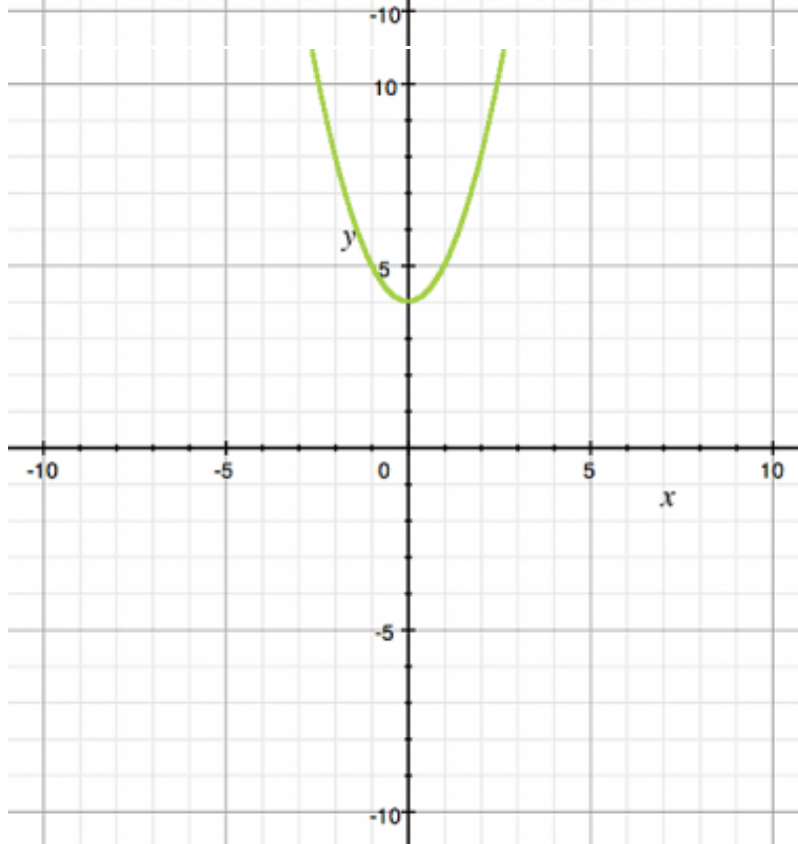
A)



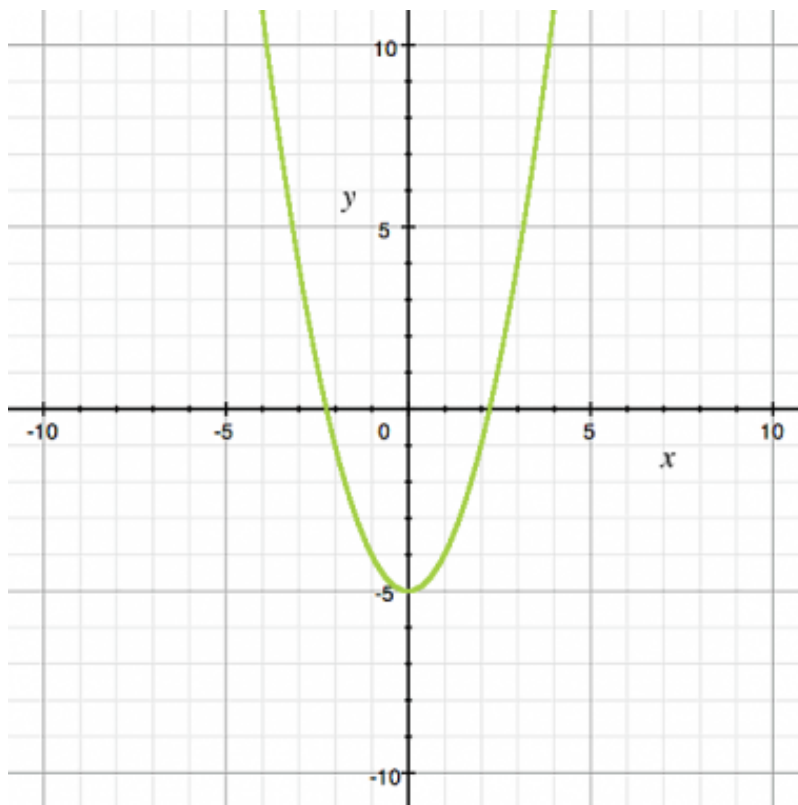
B)



C)

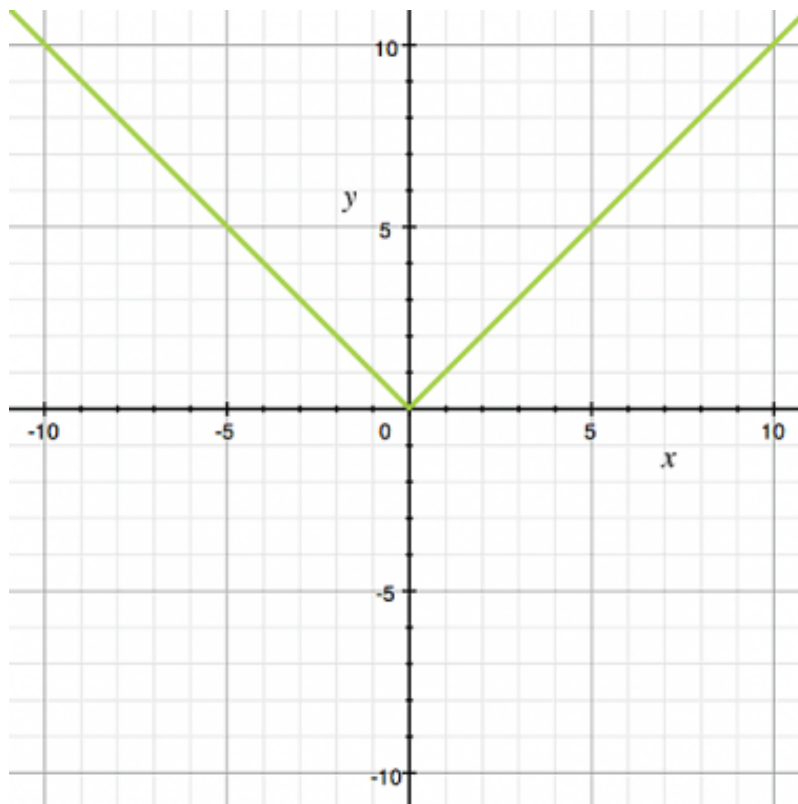


D)

**Explanation:**

Solution: **A.** The graph shown in choice A has been shifted up 1 unit.

3)



Which equation matches the function shown in the graph?

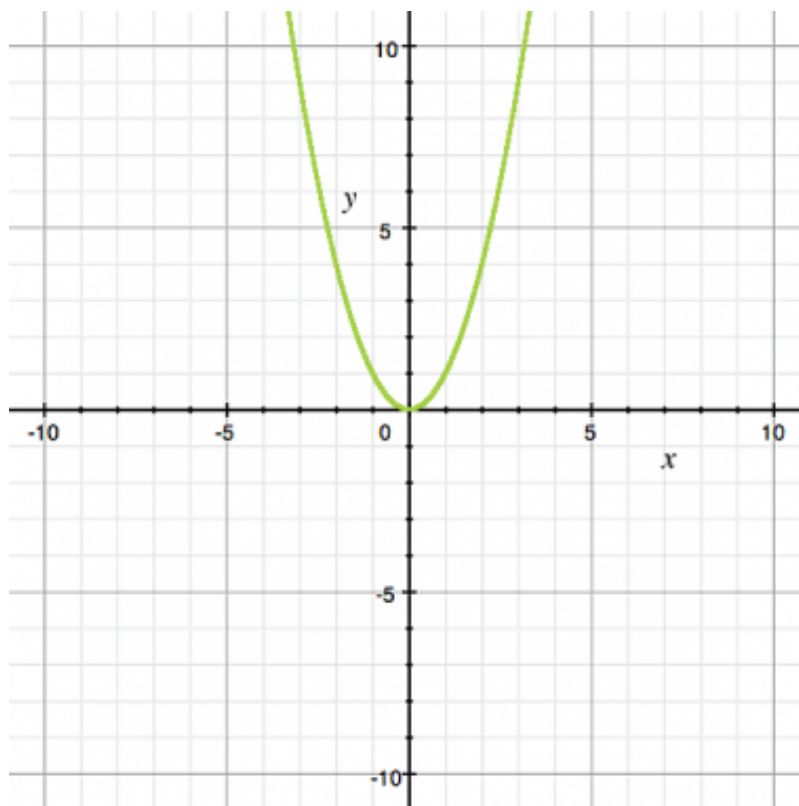
- A) $y = x$
- B) $y = |x|$**
- C) $y = x^2$

D) $y = \sqrt{x}$

Explanation:

Solution: $y = |x|$. The function shown in the graph is the absolute value function.

4)



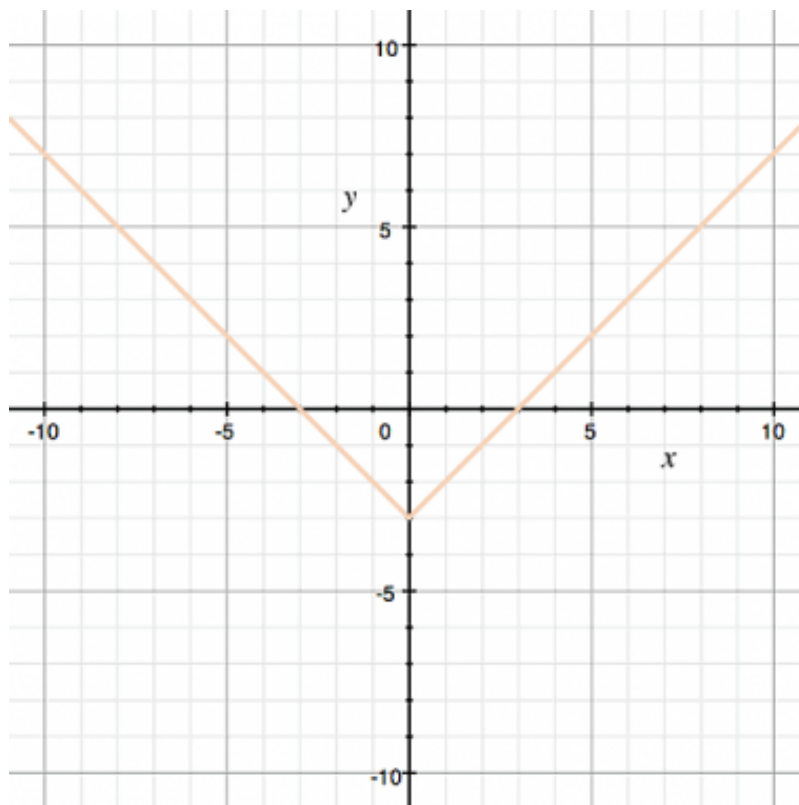
Which equation would shift the parabola down 3 units?

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

Explanation:

The solution is $y = x^2 - 3$. The -3 in this equation indicated a downward shift.

5)



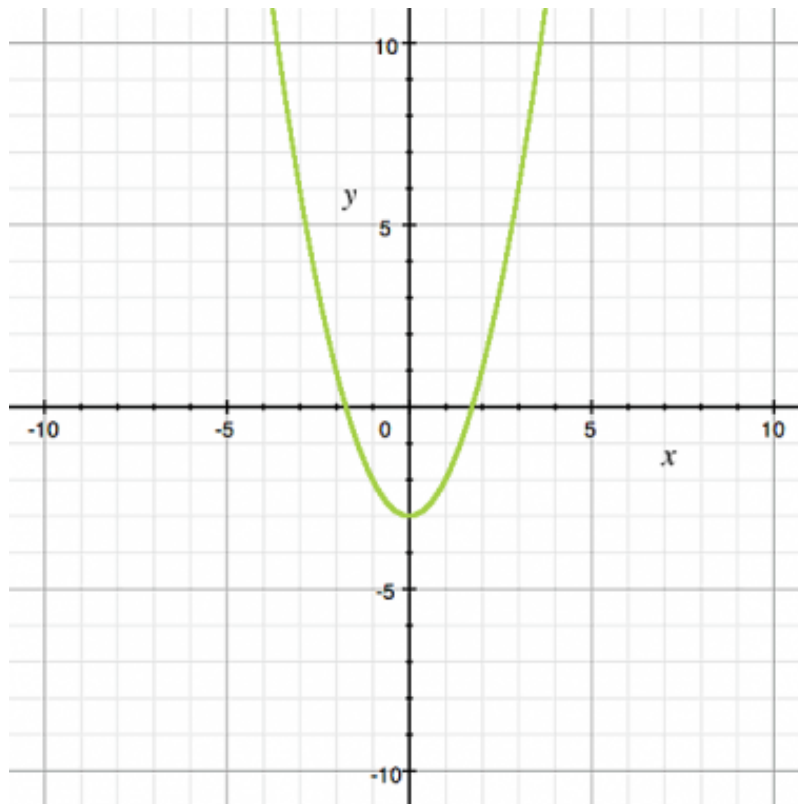
Identify the equation for the graph shown.

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

Explanation:

The y-intercept is at (0,-3) which only fits in equation B. The answer is $y = |x| - 3$.

6)



The graph shown matches which quadratic equation?

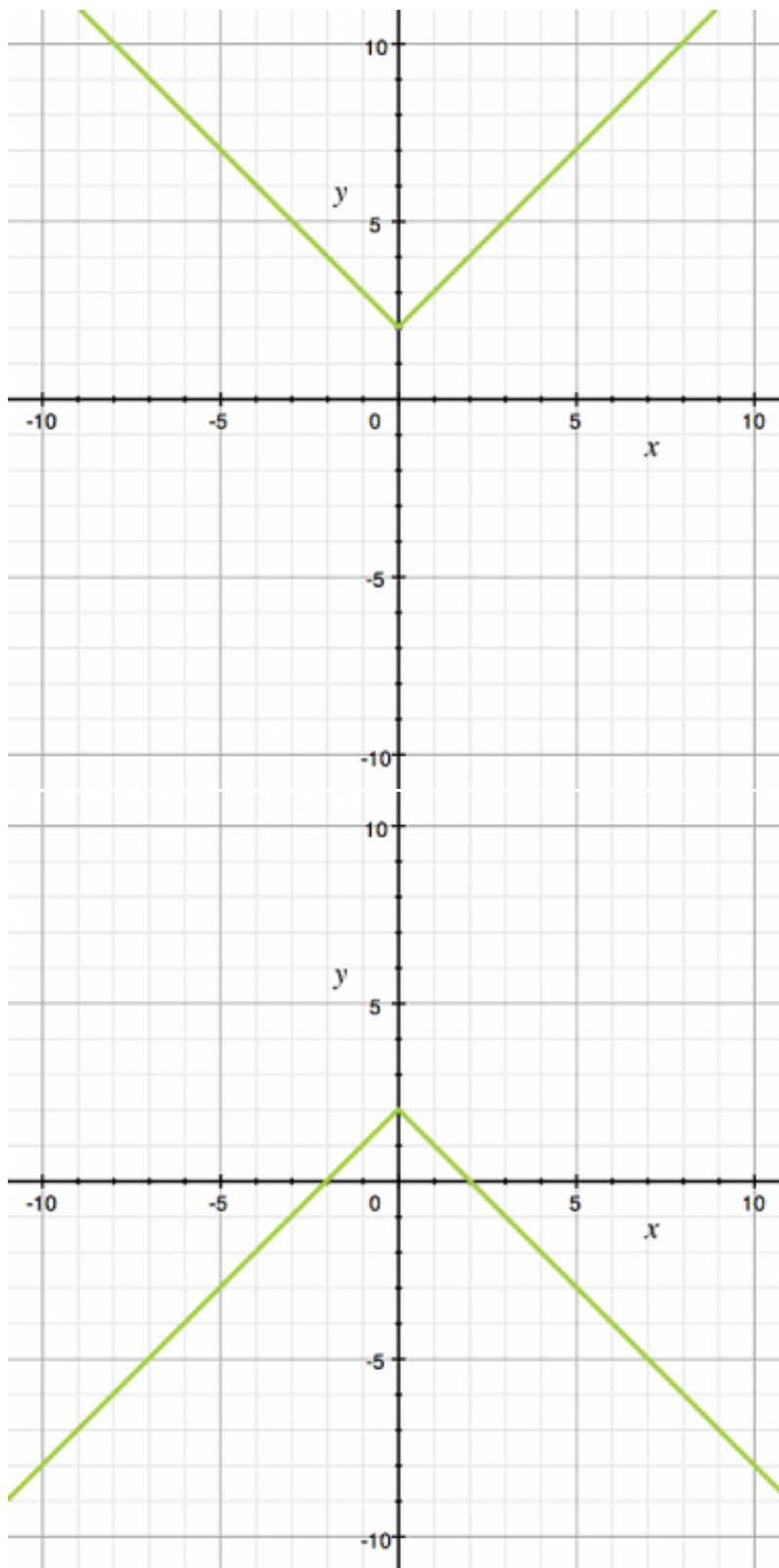
- A) $y = x^2 + 3$
- B) $y = x^2 - 3$**
- C) $y = (x - 3)^2$
- D) $y = (x + 3)^2$

Explanation:

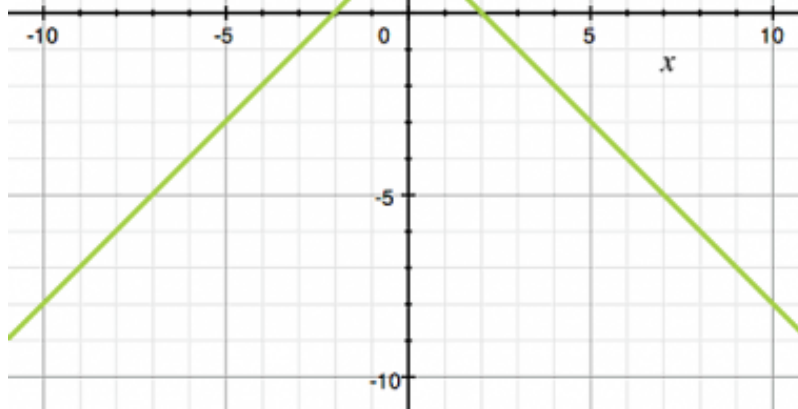
Solution: $y = x^2 - 3$. The -3 in the equation indicates that the graph has been shifted 3 units down.

7) Which shows the graph of $f(x) = |x| - 2$?

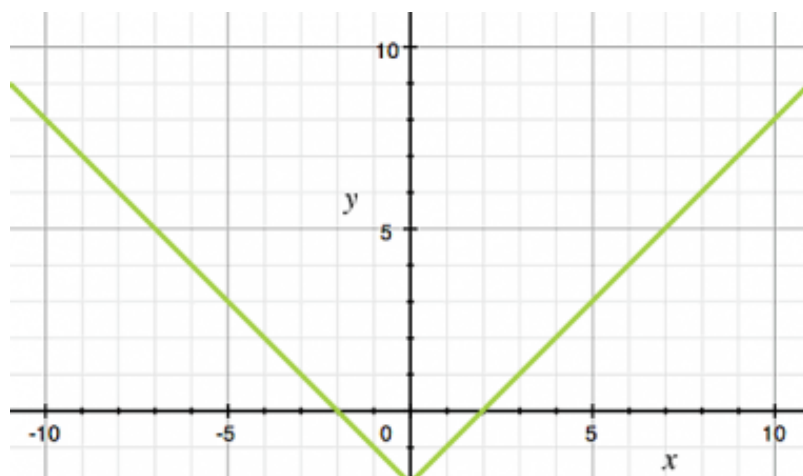
A)



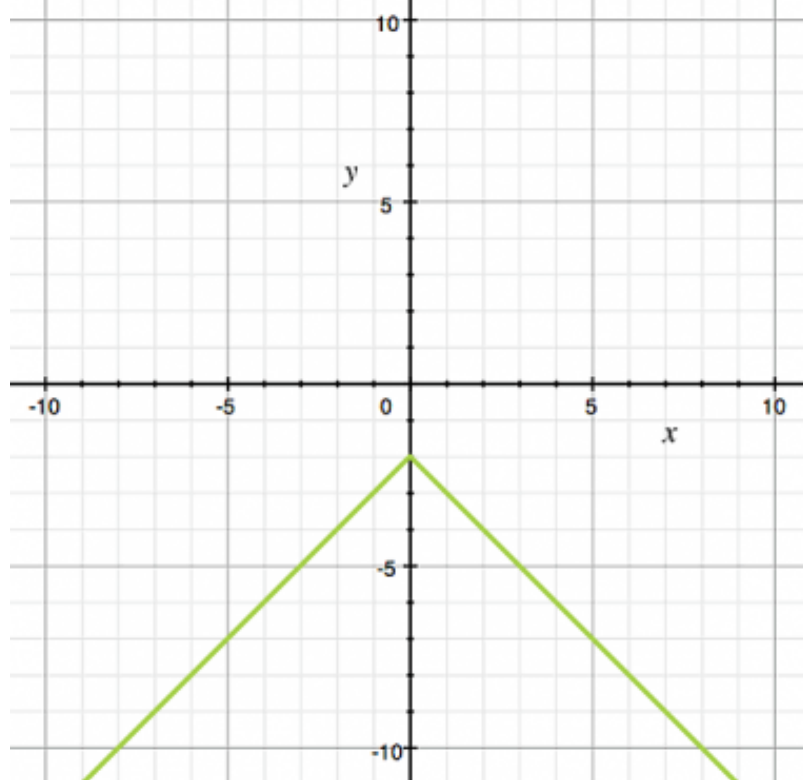
B)



C)

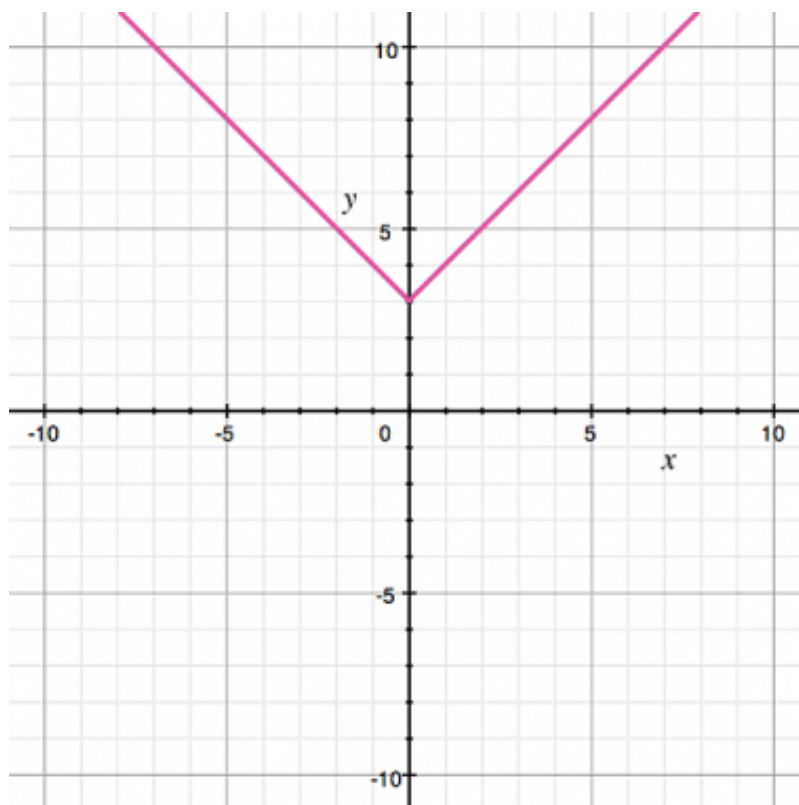


D)

**Explanation:**

The $|x|$ portion of the function tells you the graph will be open to the top. The (-2) portion of the function tells you the graph will be shifted down two units. This is shown on **graph C**.

8)



Which absolute value equation matches the graph?

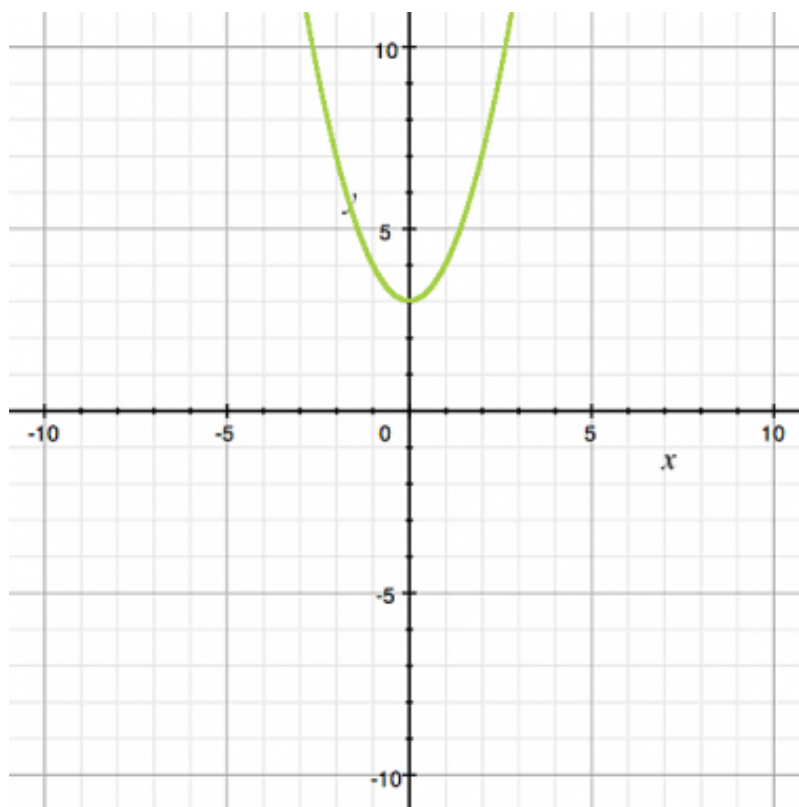
- A) $y = 3|x|$
- B) $y = |x| - 3$
- C) $y = |x| + 3$**
- D) $y = -|x| + 3$

Explanation:

Solution: **$y = |x| + 3$**

Create a table of values with the x values that are graphed and determine which equation matches the graph. In this case the answer is $y = |x| + 3$.

9)



The graph shown matches which quadratic equation?

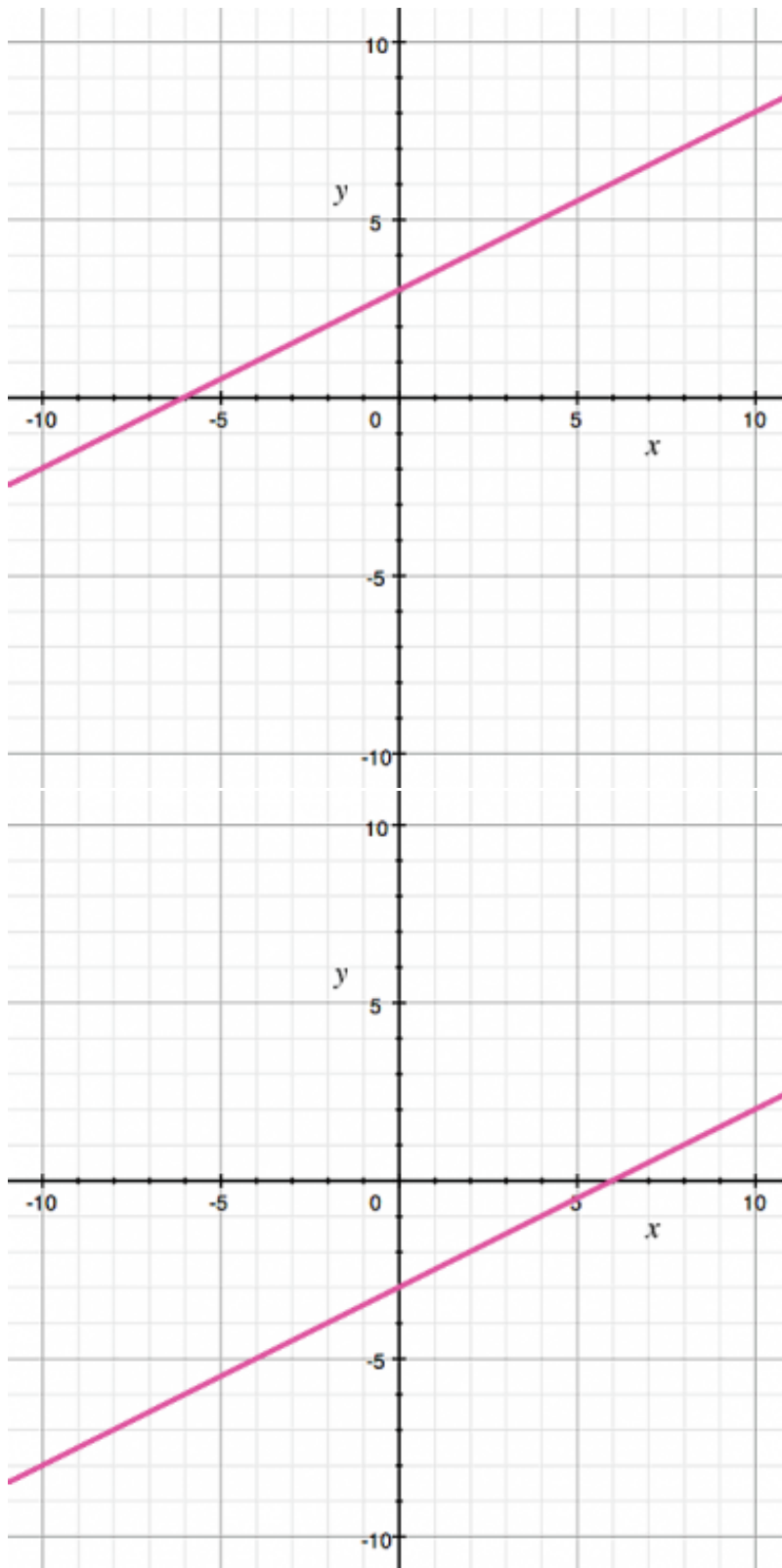
- A) $y = x^2 + 3$
- B) $y = x^2 - 3$
- C) $y = -x^2 + 3$
- D) $y = (x - 3)^2$

Explanation:

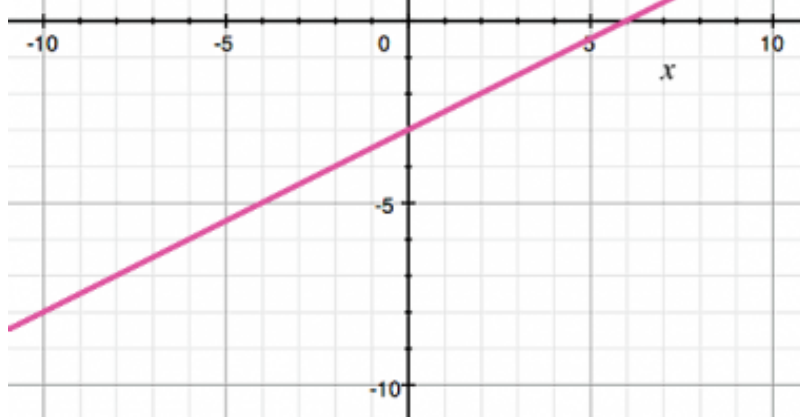
Solution: $y = x^2 + 3$. The +3 in the equation indicates that the graph has been shifted 3 units up.

10) Which graph represents the equation $y = \frac{1}{2}x + 3$?

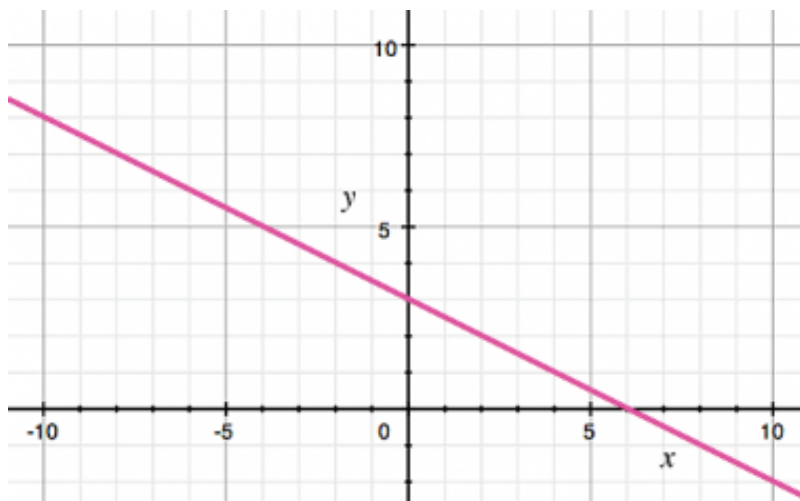
A)



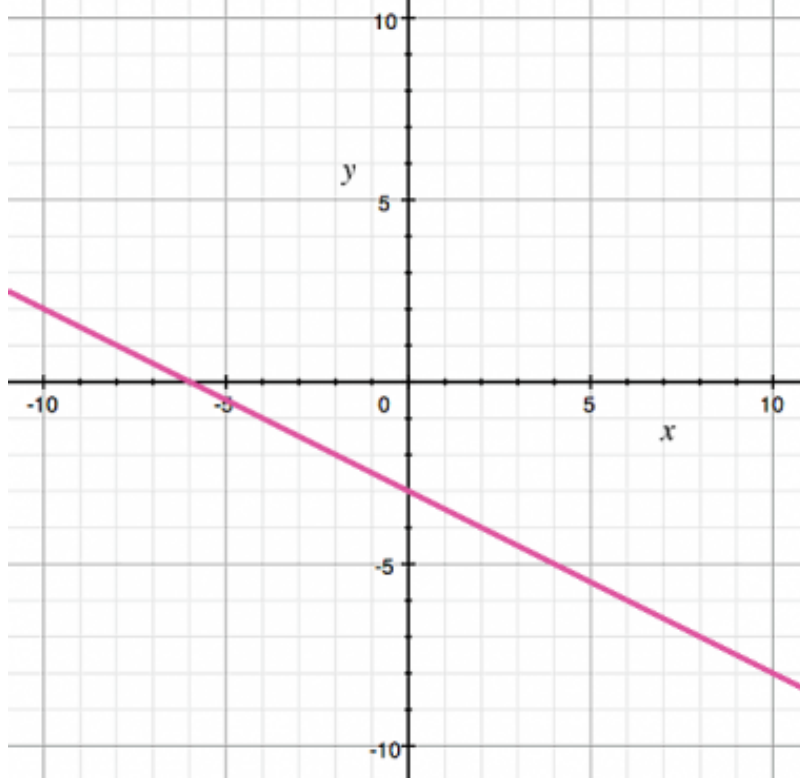
B)



C)

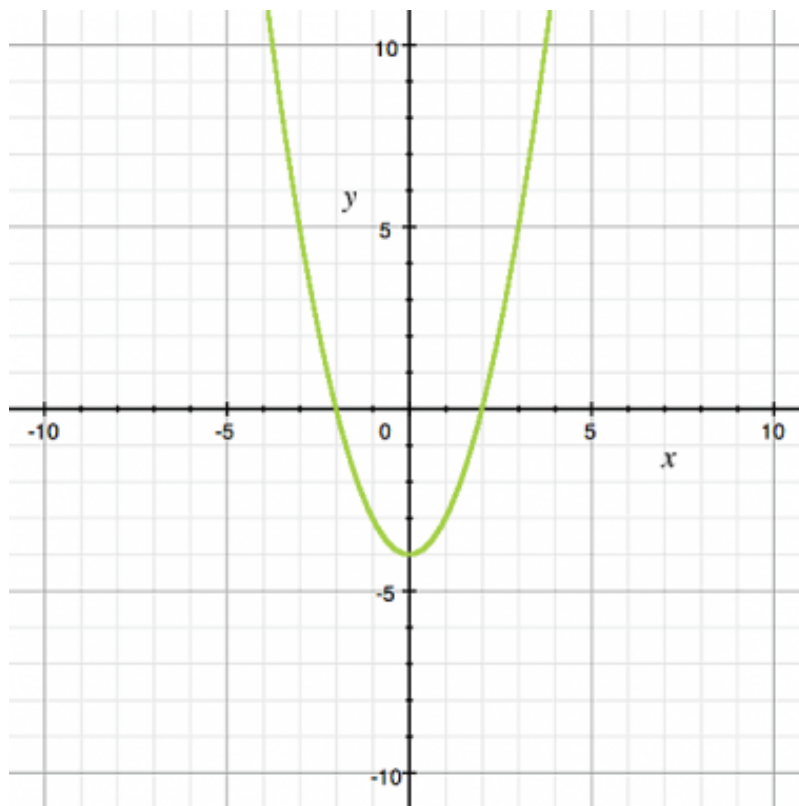


D)

**Explanation:**

Solution: **A.** The graph for choice A has a slope of $\frac{1}{2}$ and a y-intercept of 3.

11)



Which equation matches the graph?

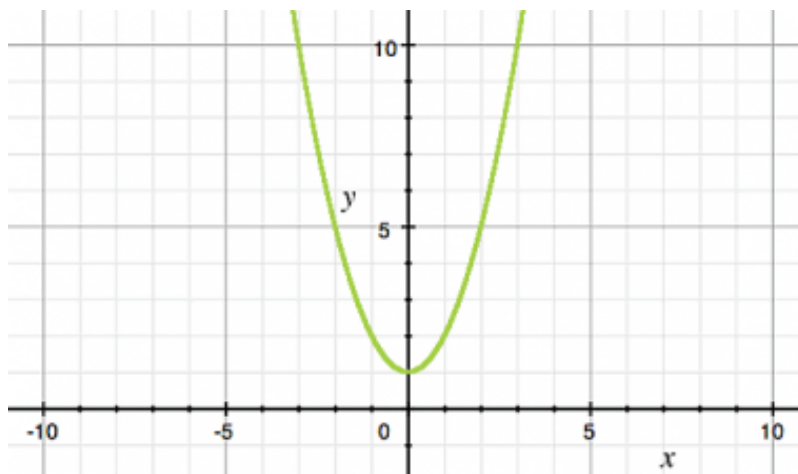
- A) $y = 2x^2$
- B) $y = -2x^2$
- C) $y = x^2 - 4$
- D) $y = x^2 + 4$

Explanation:

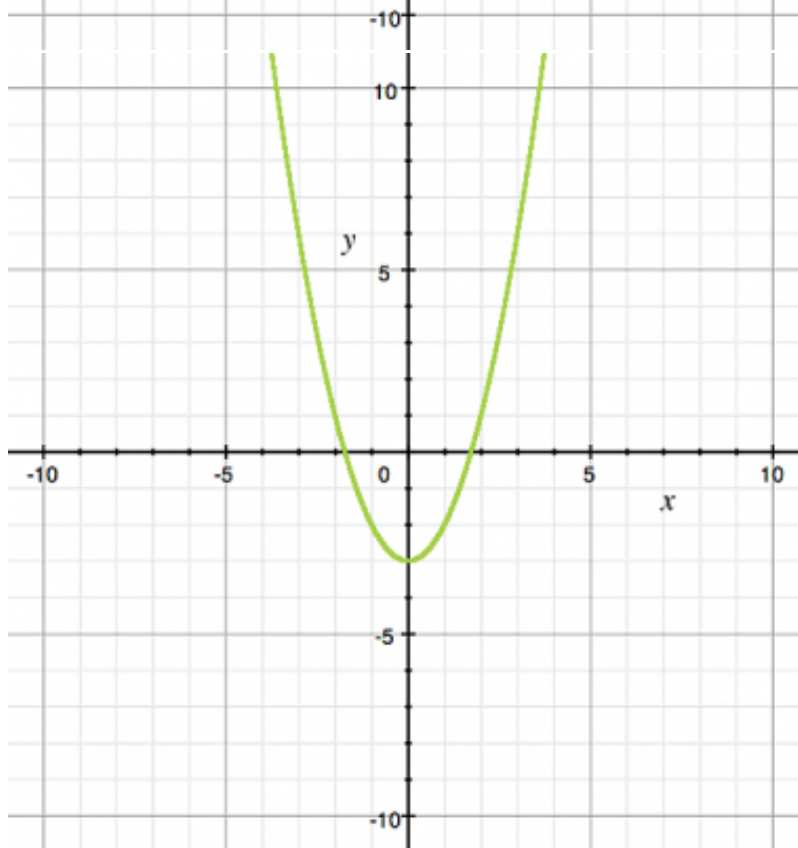
Find the x - intercepts for the graph and find the equation with the same x-intercepts. The equation is $y = x^2 - 4$.

12) The graphs represent equations of the form $y = x^2 + c$. For which graph is the value of c the greatest?

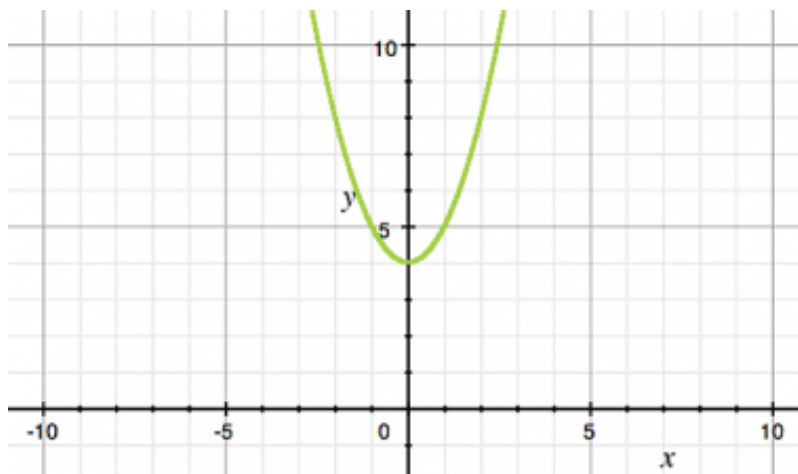
A)



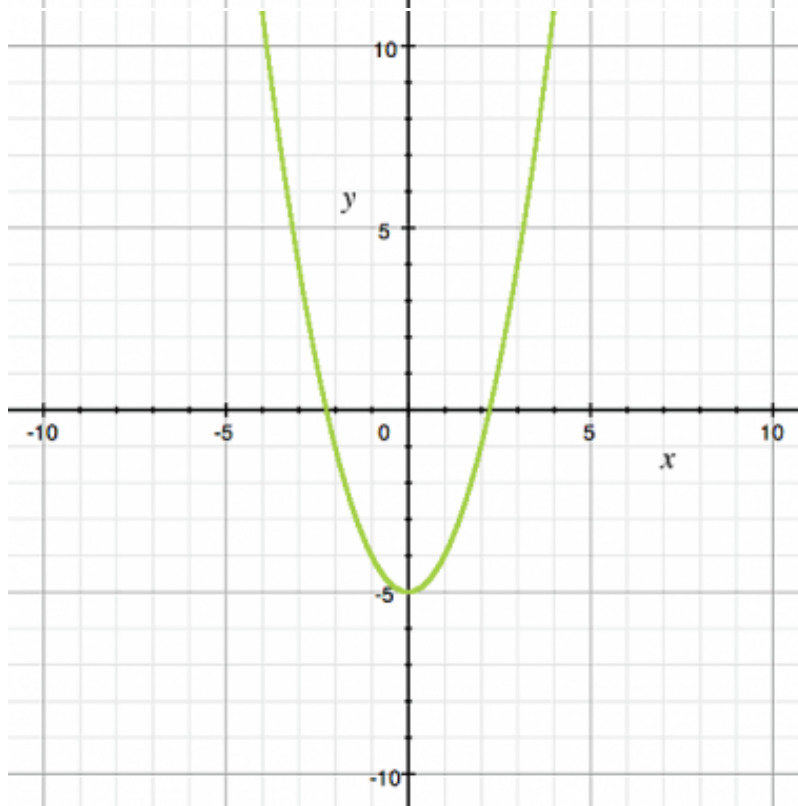
B)



C)

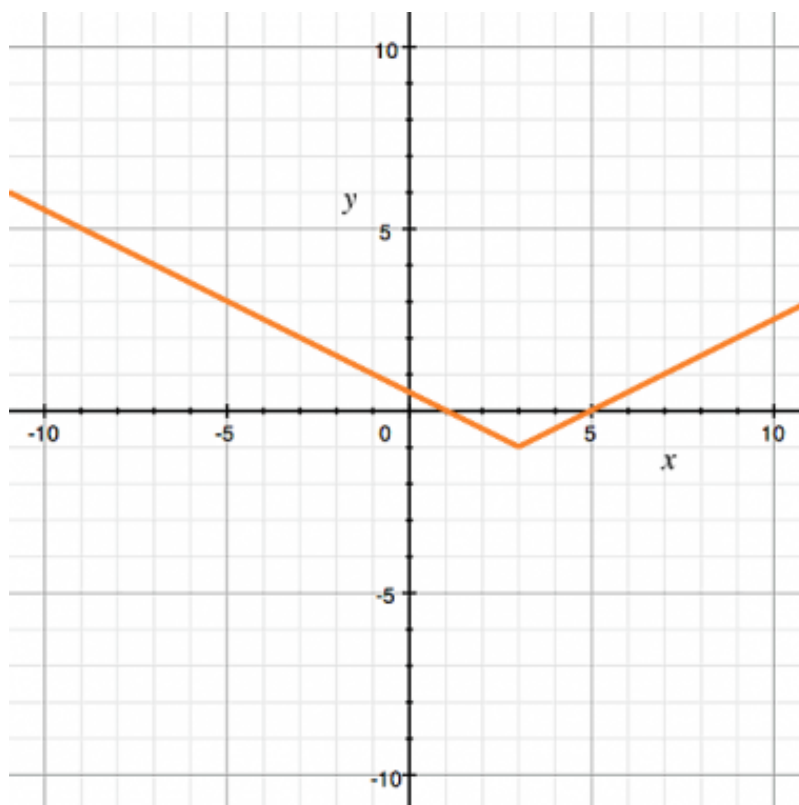


D)

**Explanation:**

Solution: **C.** The graph shown in choice C has a value of 4 for c .

13)



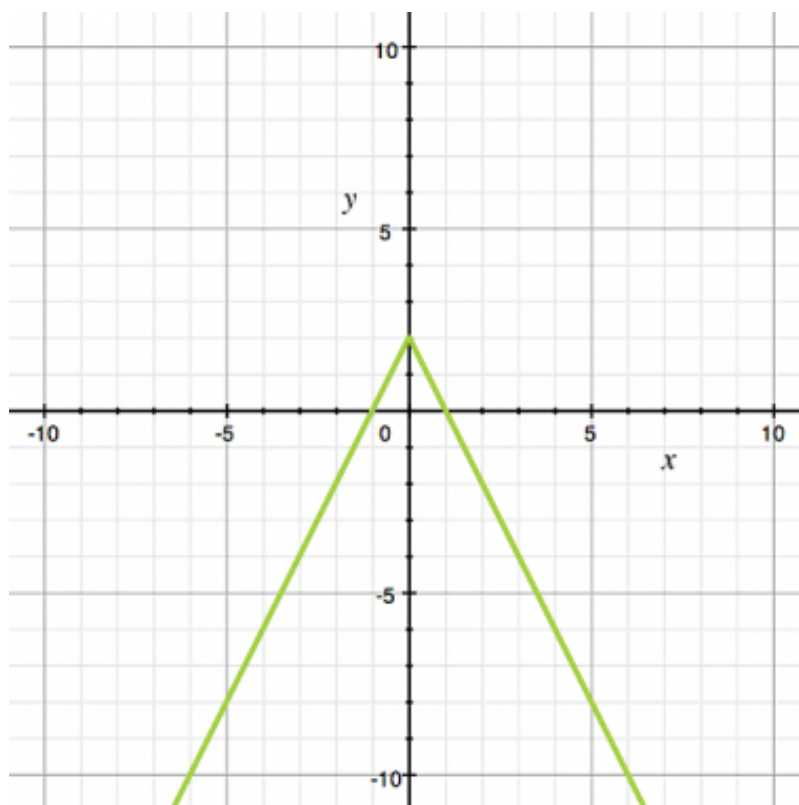
Which equation matches the graph of the absolute value function seen here?

- A) $y = -|x|$
- B) $y = -\frac{1}{2}|x| - 1$
- C) $y = \frac{1}{2}|x - 3| - 1$
- D) $y = |\frac{1}{2}x - 2| - 1$

Explanation:

Create a table of values for each of the equations above and determine which equation matches the graph. The correct answer is $y = \frac{1}{2}|x - 3| - 1$.

14)



Which equation matches the graph?

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

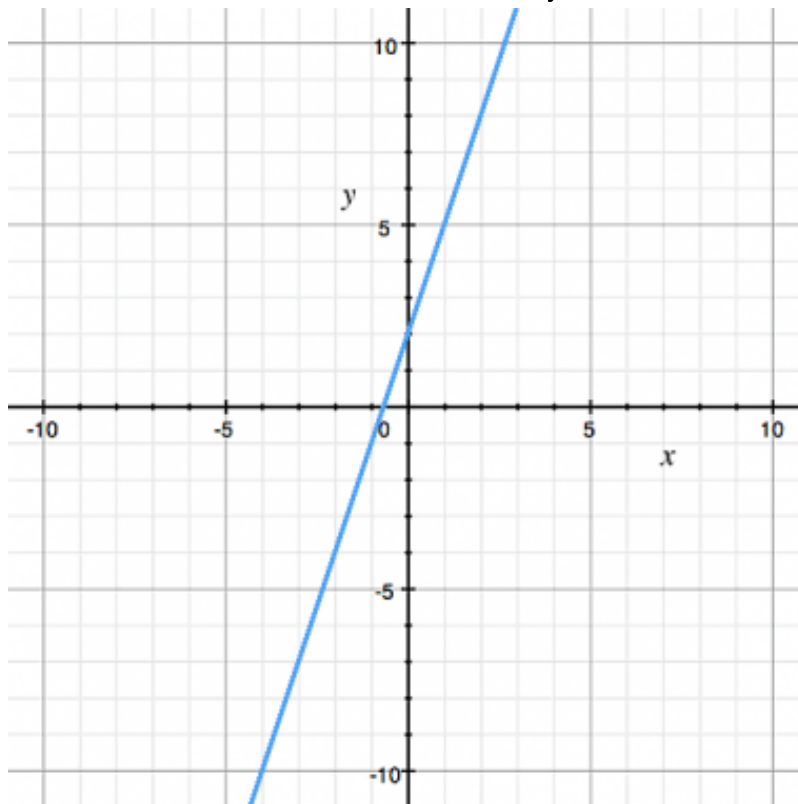
Explanation:

Create a table for each equation above and find the one that matches the graph. The correct answer is $y = -2|x| + 2$.

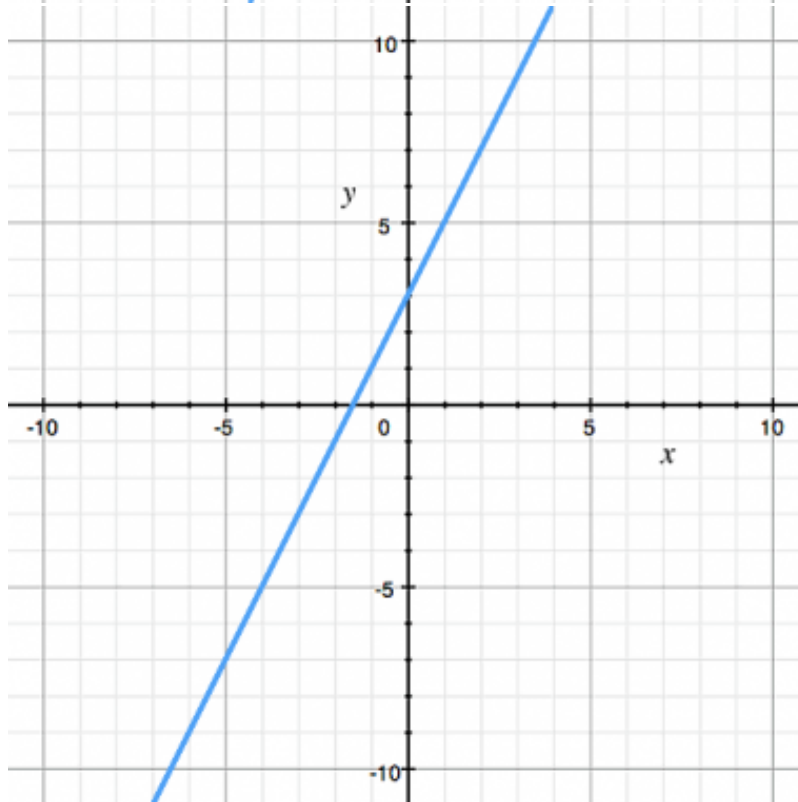
15) Graph

$$y = 2x + 3$$

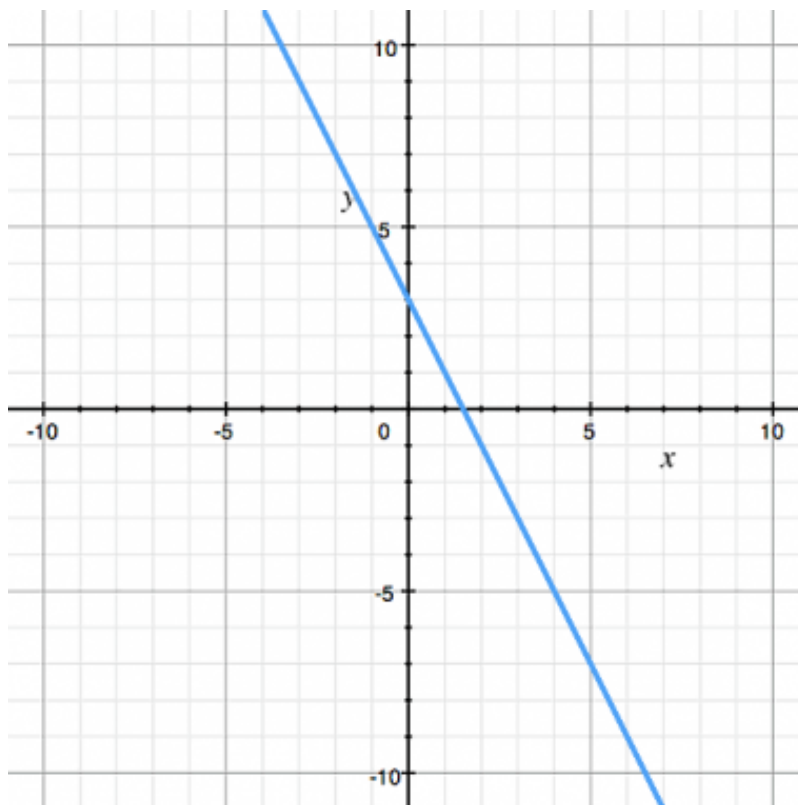
A)



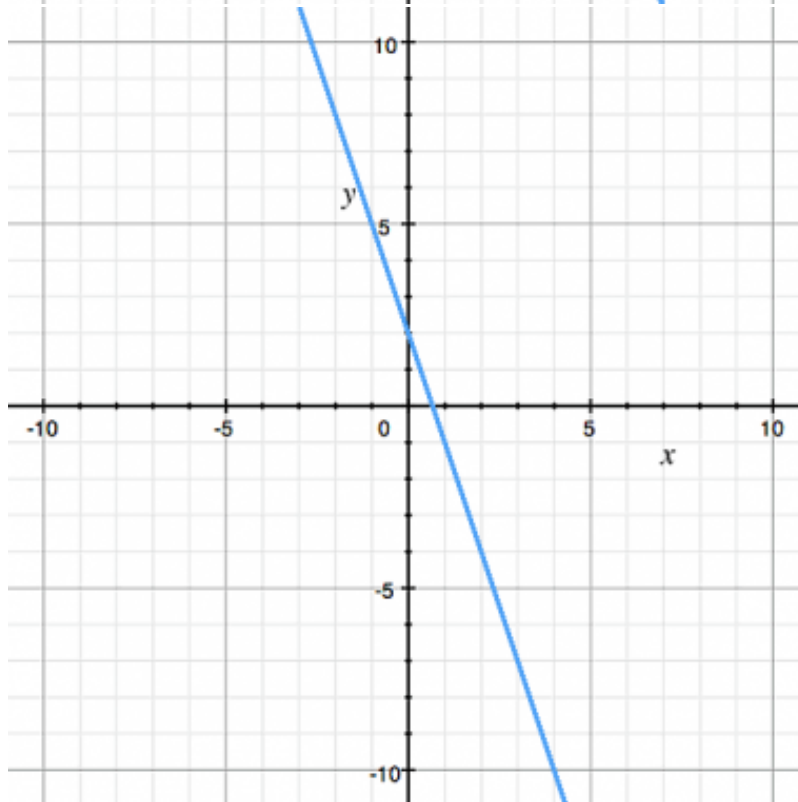
B)



C)



D)

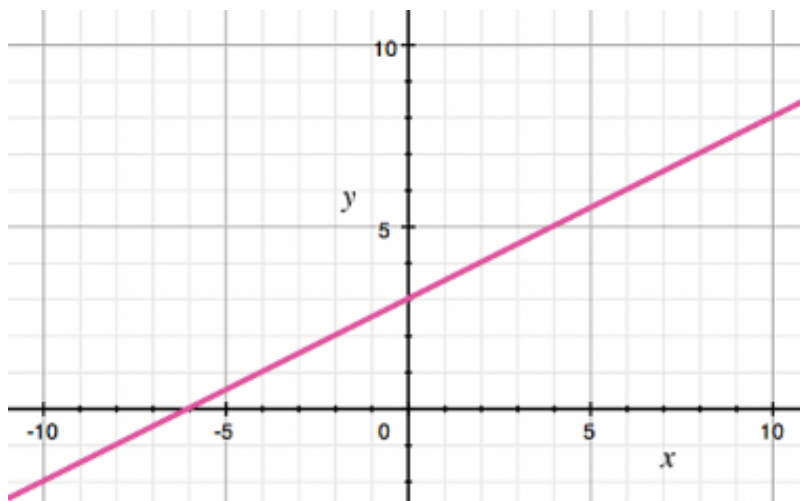


Explanation:

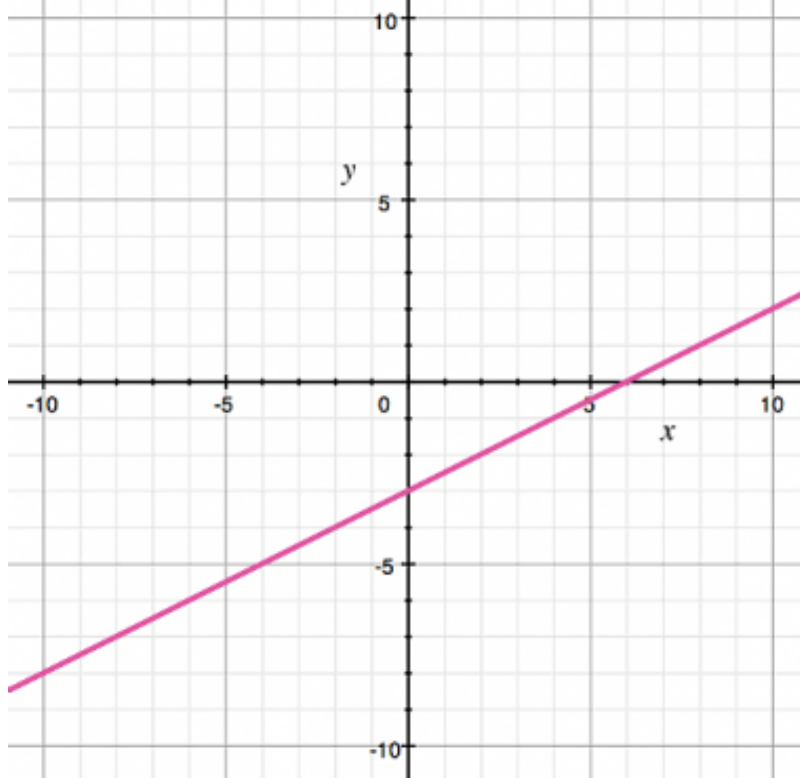
The slope is 2 or $\frac{2}{1}$ and the y-intercept is 3. So we start at 3 on the y-axis and then go up 2 and to the right 1. The correct answer is graph B.

16) Which graph represents the equation $y = \frac{1}{2}x - 3$?

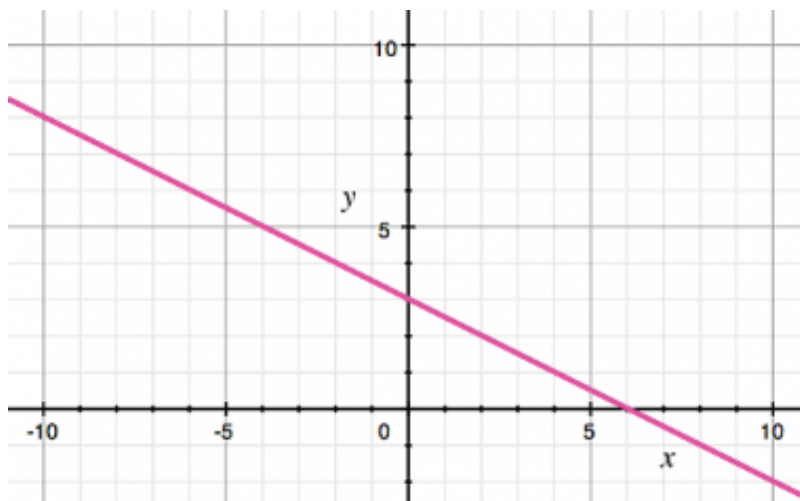
A)



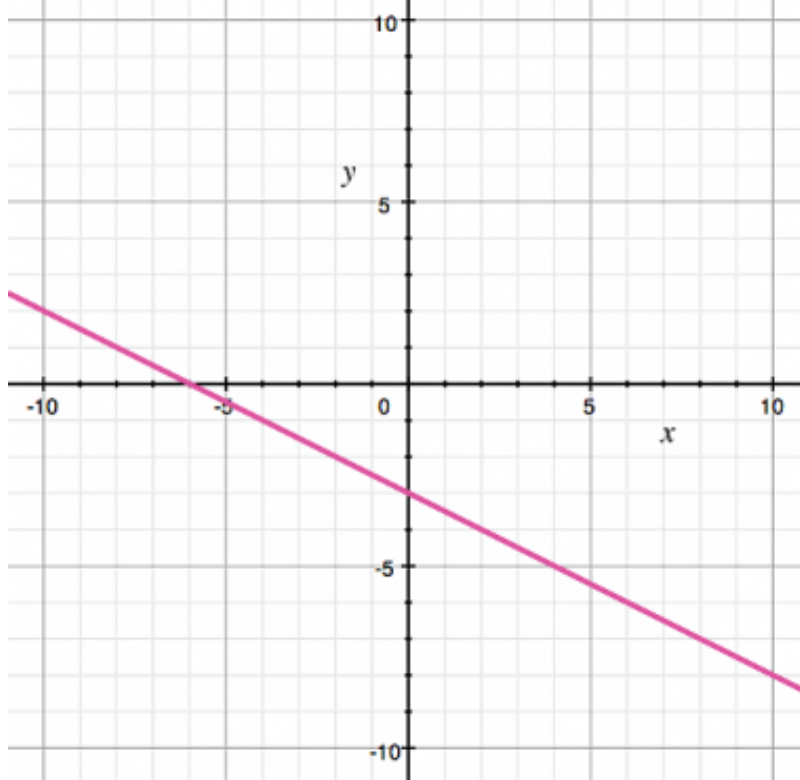
B)



C)



D)

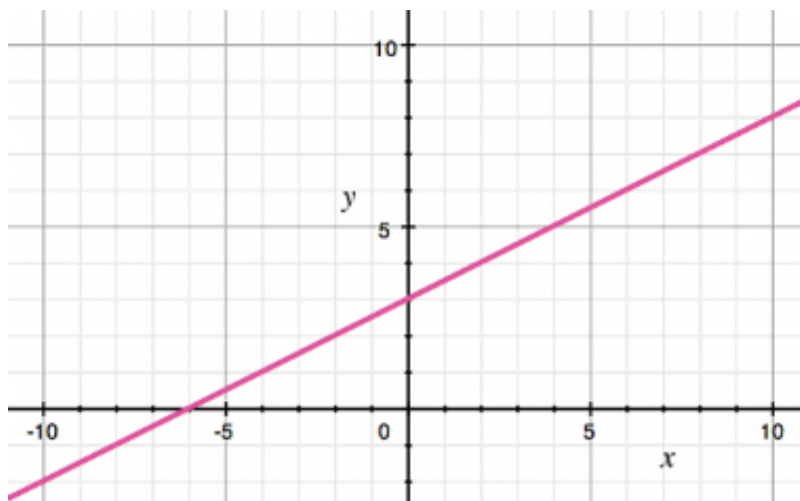


Explanation:

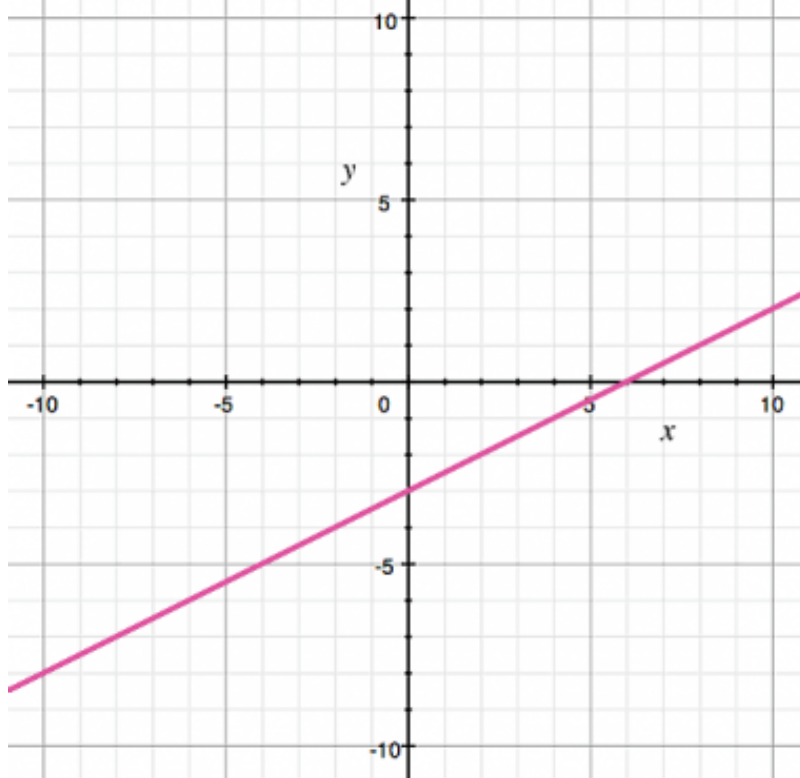
Solution: B. The graph for choice B has a slope of $\frac{1}{2}$ and a y-intercept of -3.

17) Which graph represents the equation $y = -\frac{1}{2}x + 3$?

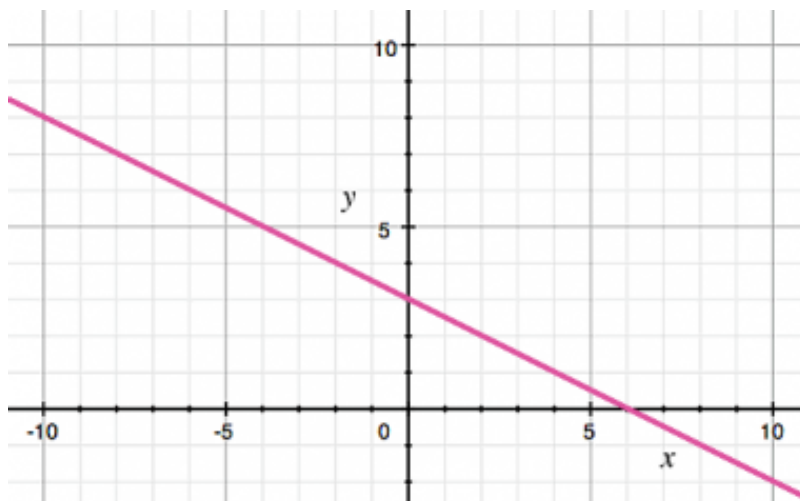
A)



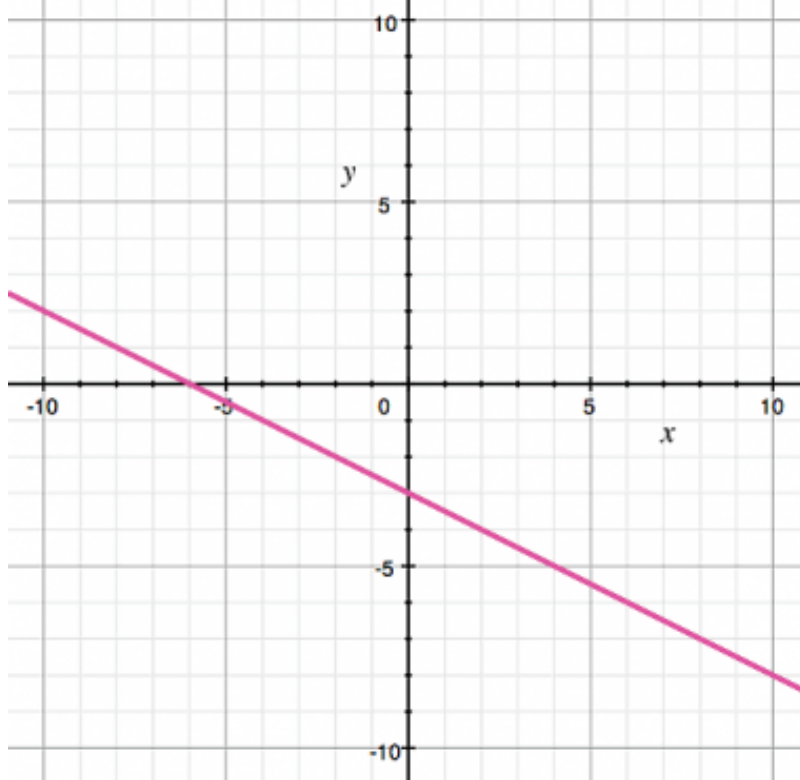
B)



C)



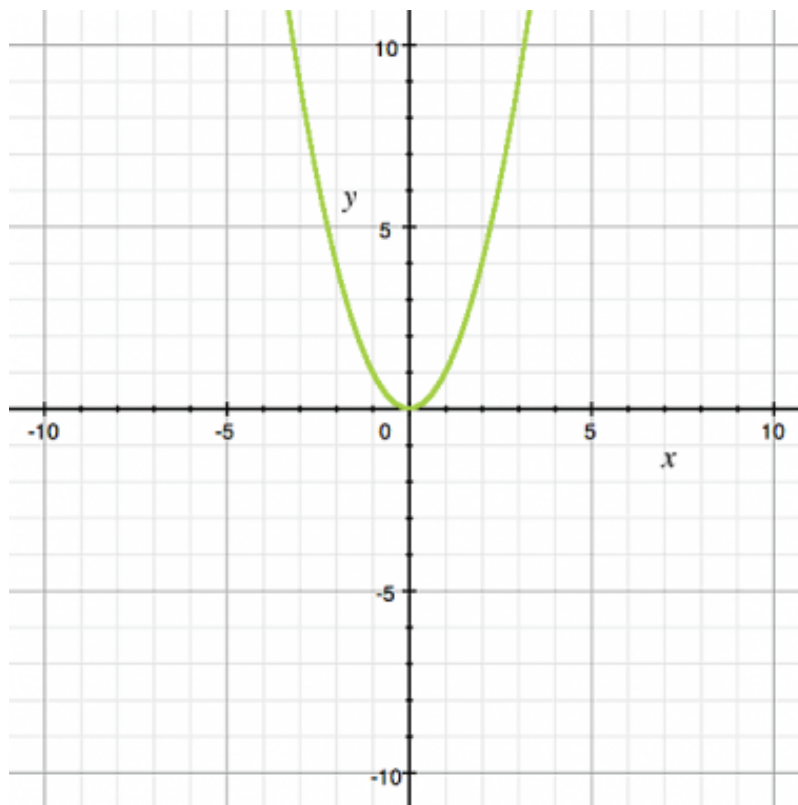
D)



Explanation:

Solution: C. The graph for choice C has a slope of $-\frac{1}{2}$ and a y-intercept of 3.

18)



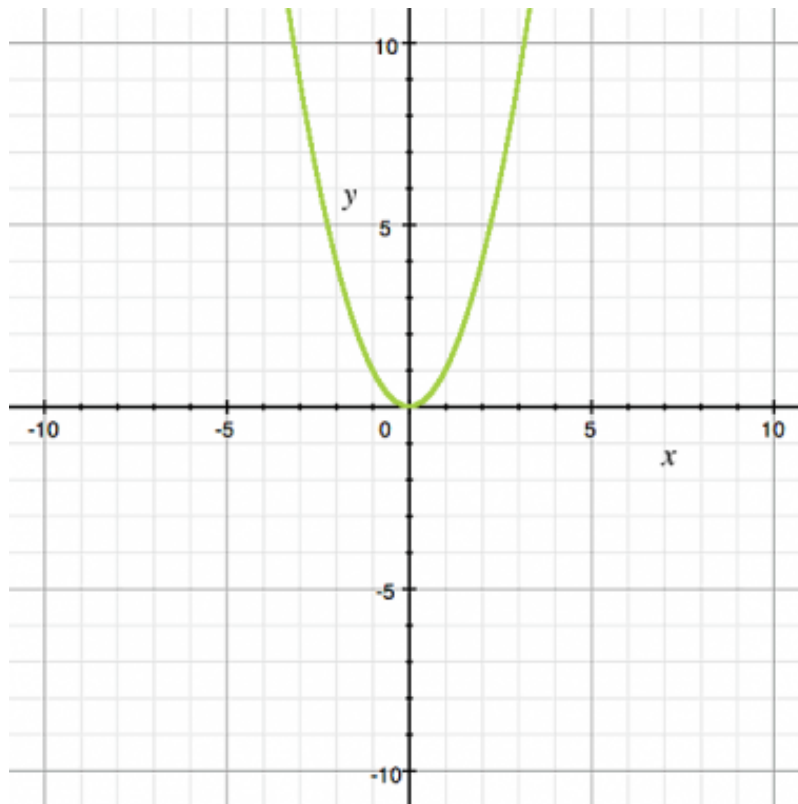
The graph of the function $y = x^2$ is shown. How will the graph change if the equation is changed to $y = \frac{1}{4}x^2$?

- A) The parabola will become wider.
- B) The parabola will become narrower.
- C) The parabola will move up $\frac{1}{4}$ unit.
- D) The parabola will move down $\frac{1}{4}$ unit.

Explanation:

The parabola will become wider. The graph of the function $y = \frac{1}{4}x^2$ is wider than the graph of the function $y = x^2$. This can be seen by plugging in a few test points and plotting the function.

19)



The graph of the function $y = x^2$ is shown. How will the graph change if the equation is changed to $y = 2x^2$?

- A) The parabola will become wider.
- B) The parabola will become narrower.
- C) The parabola will move up 2 units.
- D) The parabola will move down 2 units.

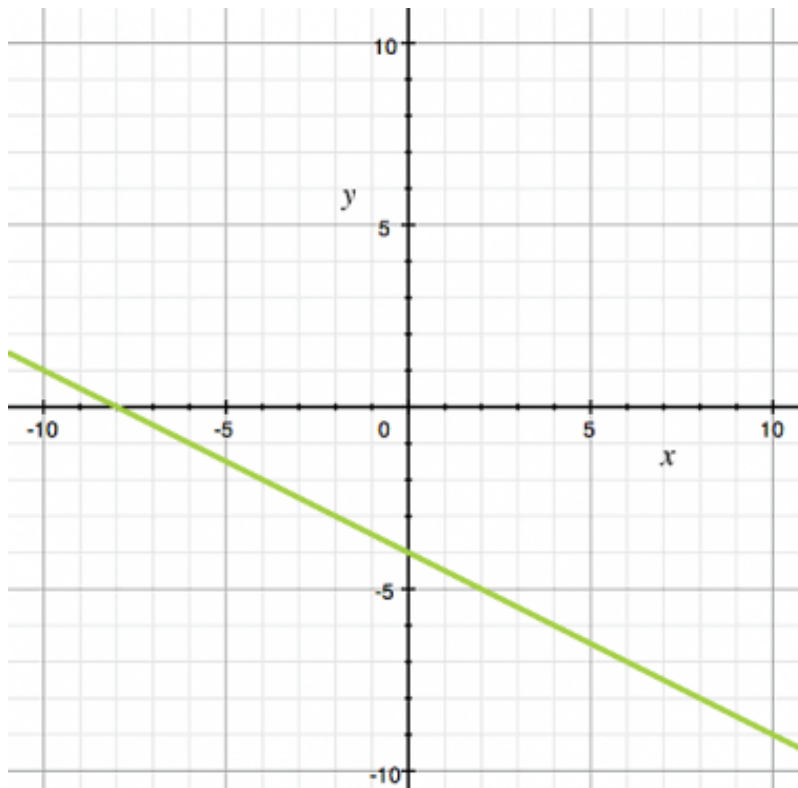
Explanation:

The parabola will become narrower. The graph of the function $y = 2x^2$ is more narrow than the graph of the function $y = x^2$. This can be seen by plugging in a few test points and plotting the function.

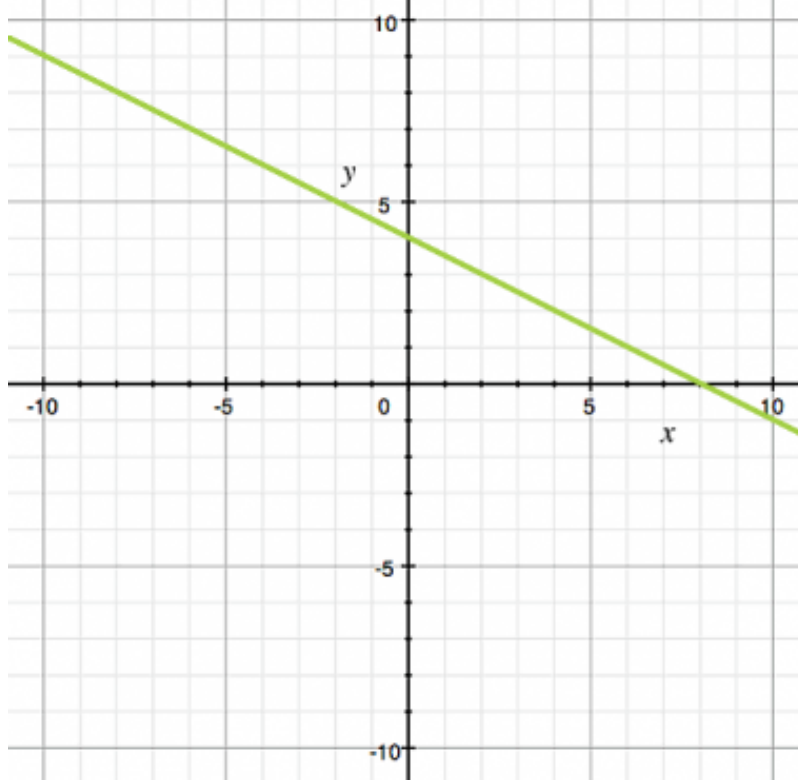
20) Given: $m = \frac{1}{2}$ and $b = 4$

The slope and y-intercept for a linear equation are given. Which graph matches this information?

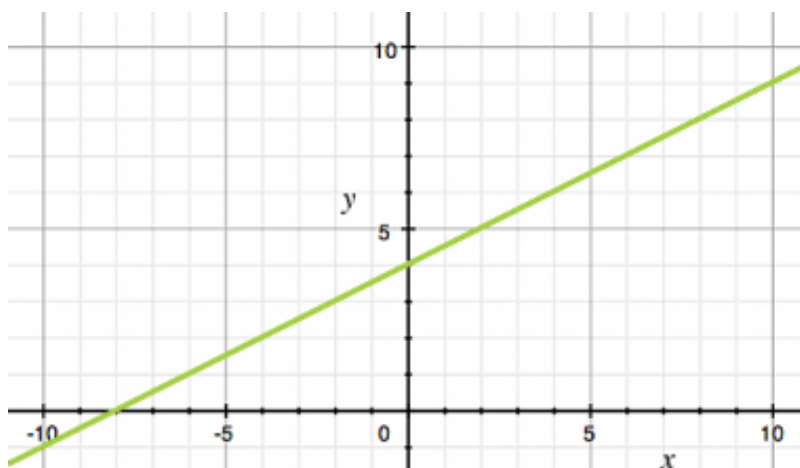
A)



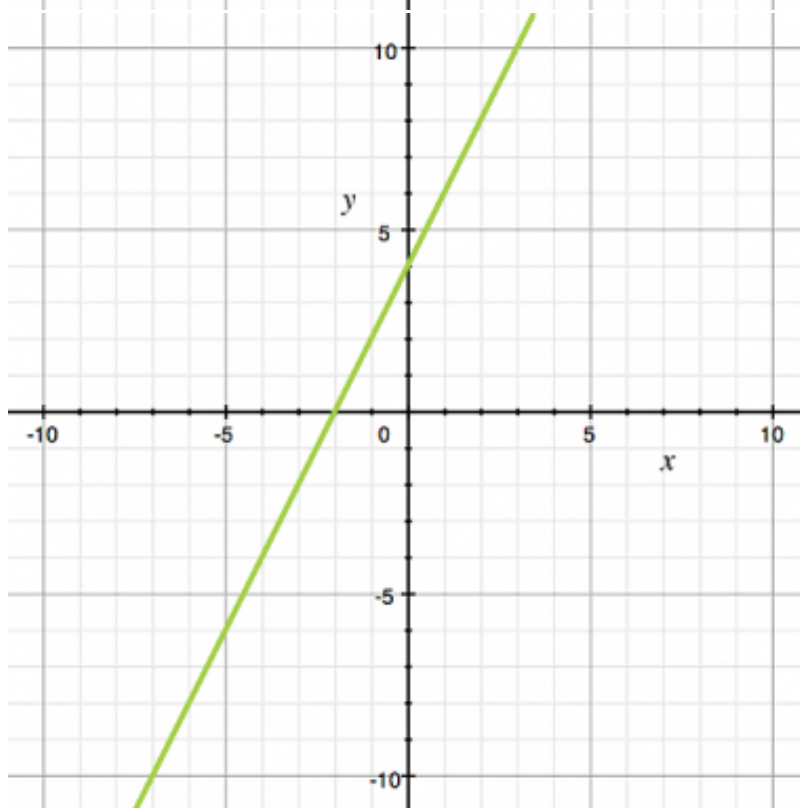
B)



C)



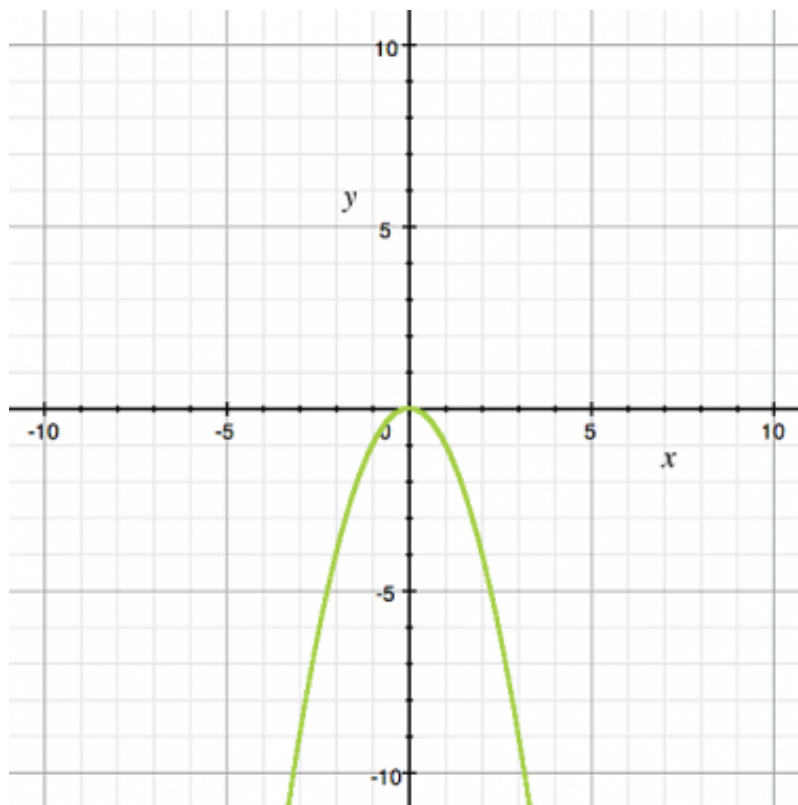
D)



Explanation:

Since the slope is $\frac{1}{2}$ and the y-intercept is 4, we can conclude that the equation is $y = \frac{1}{2}x + 4$. The graph crosses the y-axis at positive 4 and has a positive slope of $\frac{1}{2}$. This is shown in graph C.

21)



Which of the equations represents the function?

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

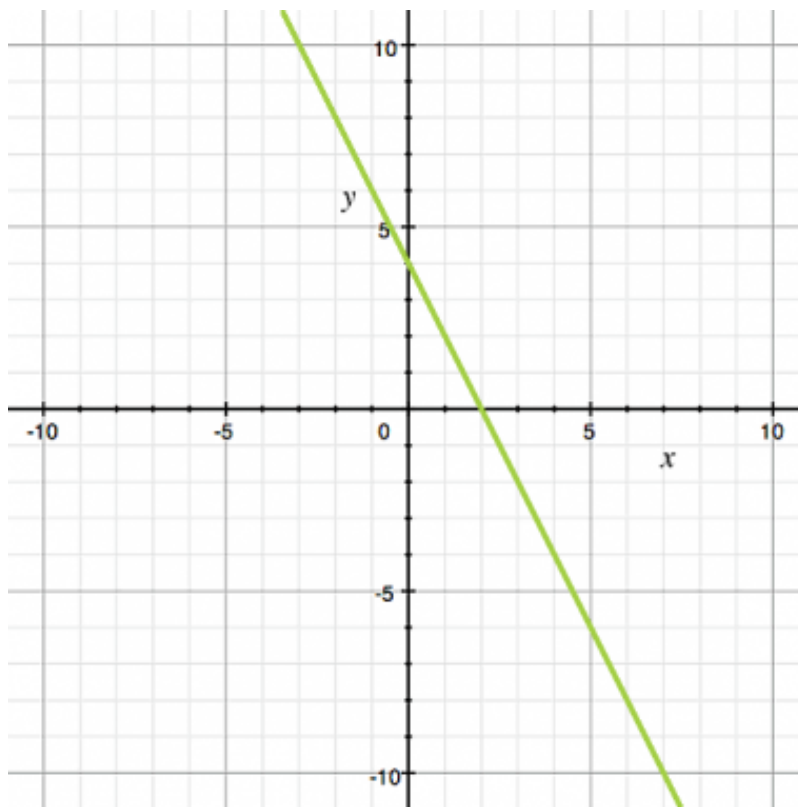
Explanation:

The correct answer is $y = -x^2$.

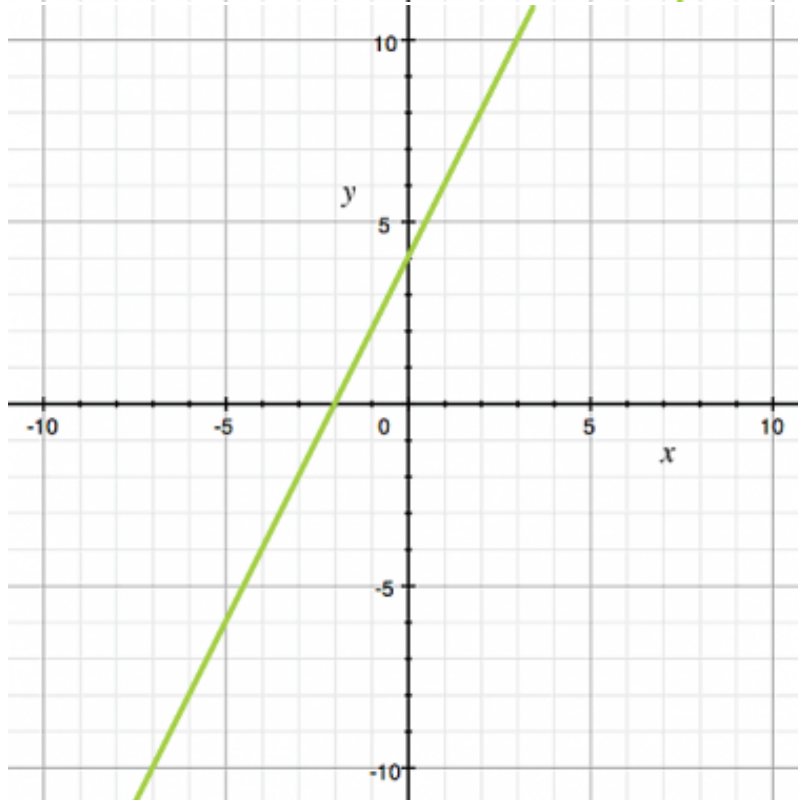
It only changes direction once so it is a quadratic and it opens downward so the leading coefficient must be negative.

22) Which graph models the equation $-2x + y = 4$?

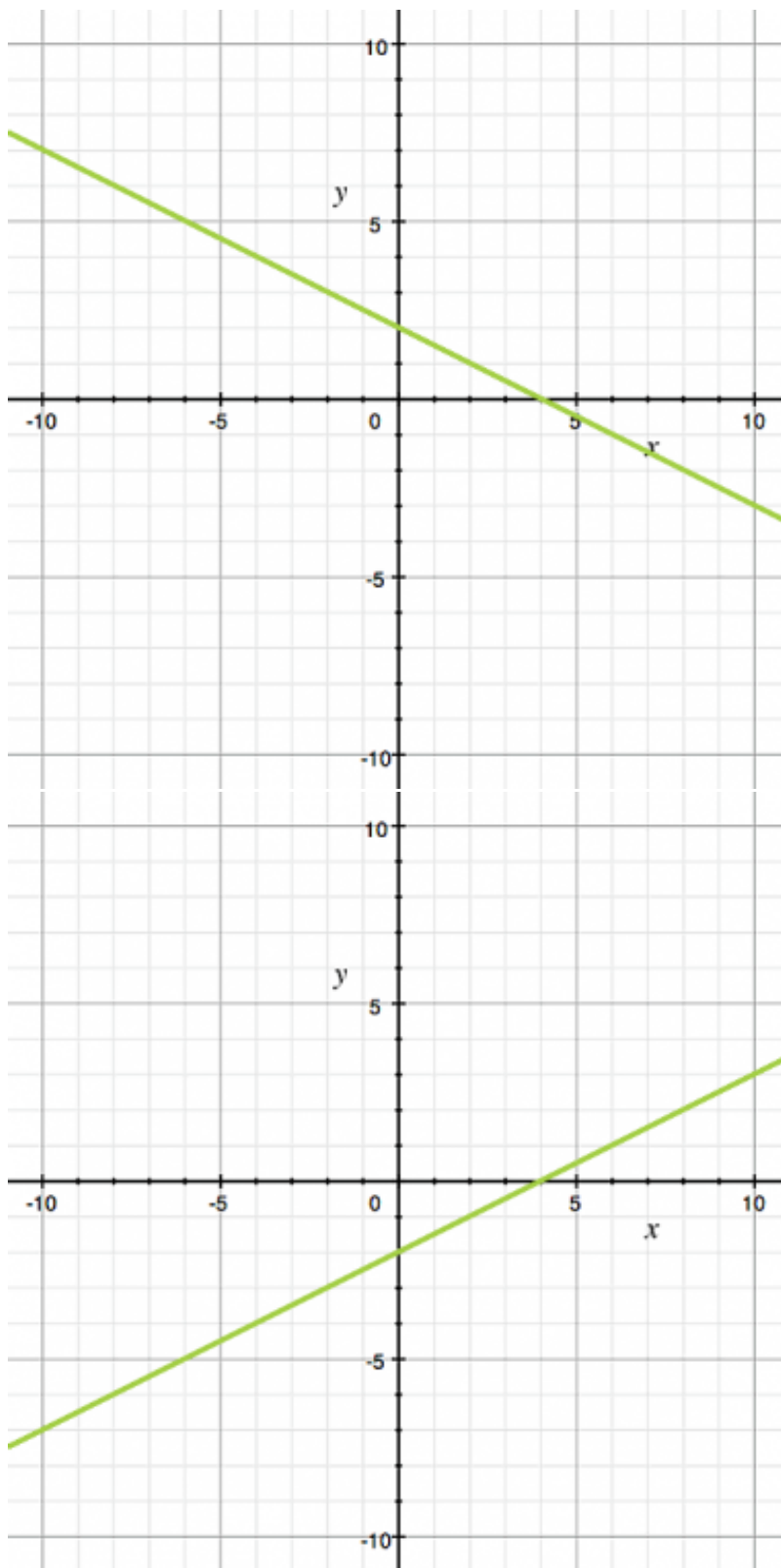
A)



B)



C)



D)

Explanation:

The solution is Graph B. In this form, it is easier to see that when $x = 0$, $y = 4$, and when $y = 0$, $x = -2$. The line passes through $(0, 4)$ and $(-2, 0)$

23)

A		C	
x	y	x	y
1	1	1	4
2	4	2	2
3	9	3	$\frac{4}{3}$
4	16	4	1

B		D	
x	y	x	y
1	$\frac{1}{2}$	1	3
2	1	2	5
3	$\frac{3}{2}$	3	7
4	2	4	9

The tables show four relationships between x and y. In which table is there a NEGATIVE rate of change?

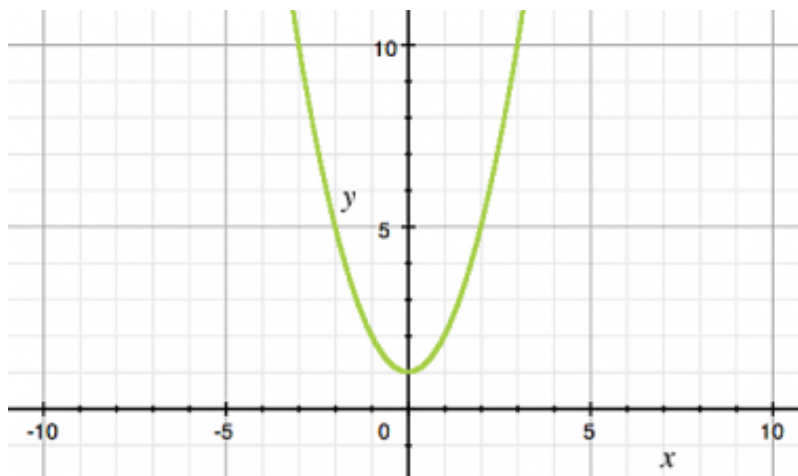
- A)
- B)
- C)
- D)

Explanation:

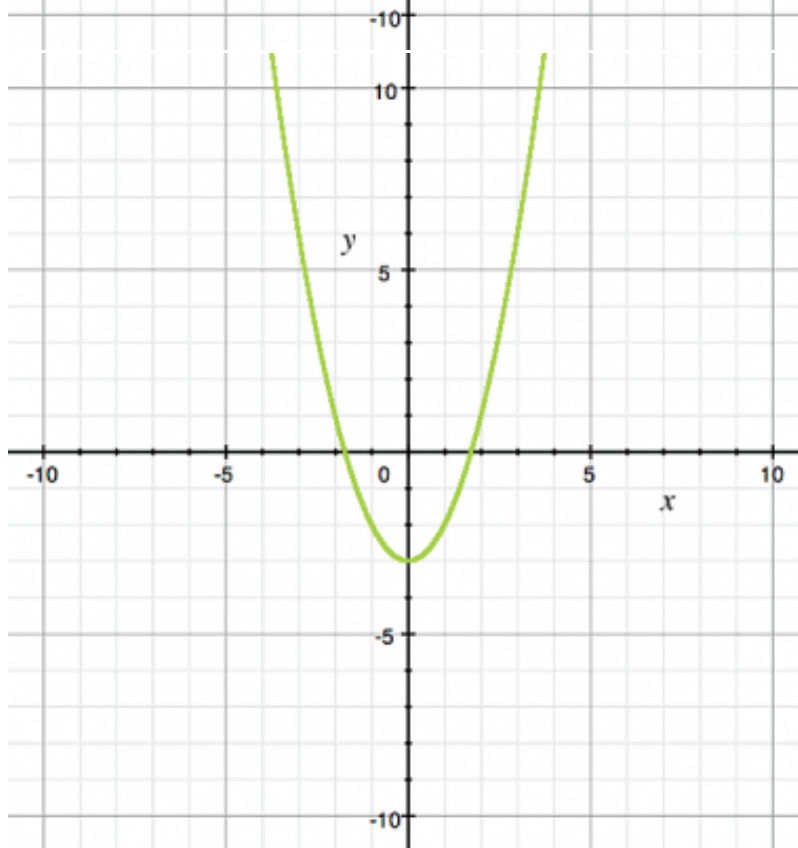
In table C the y-values fall as x increases, so the rate of change is negative.

24) The graphs represent equations of the form $y = x^2 + c$. For which graph is the value of c the smallest?

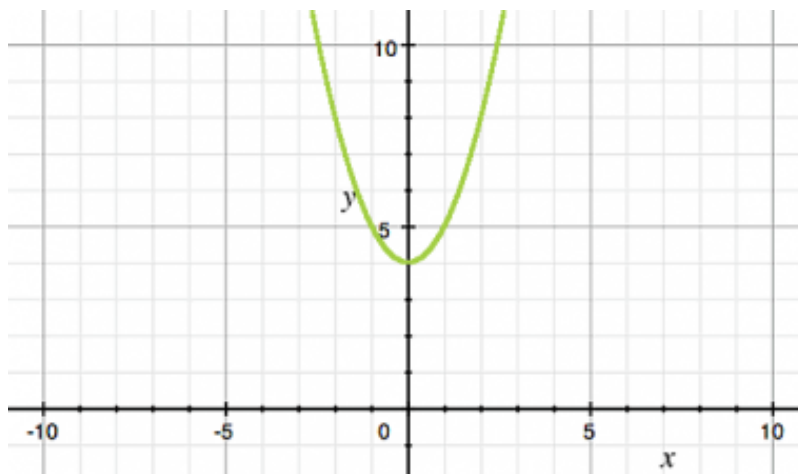
A)



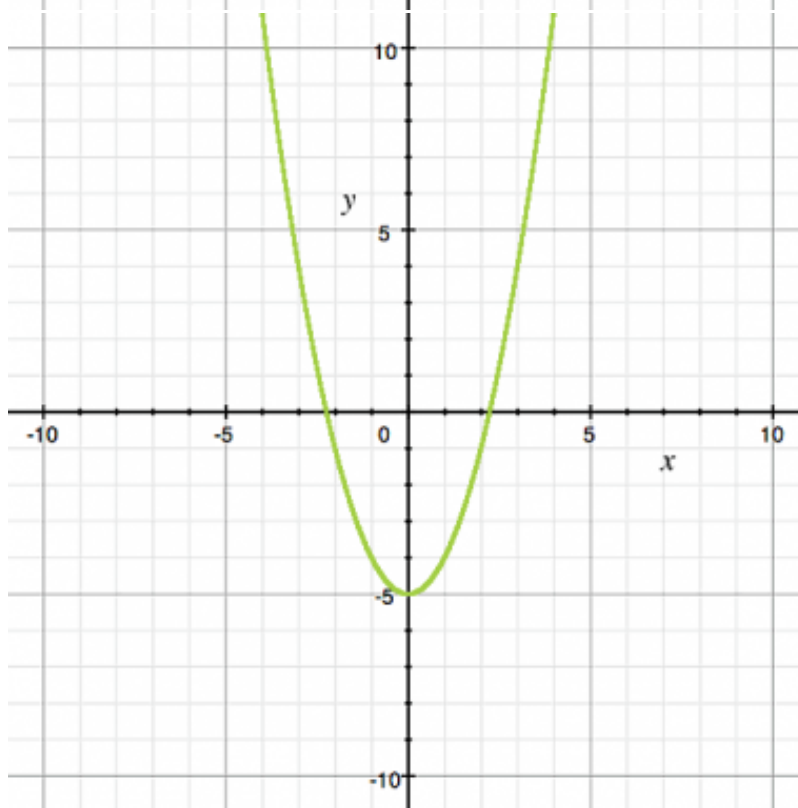
B)



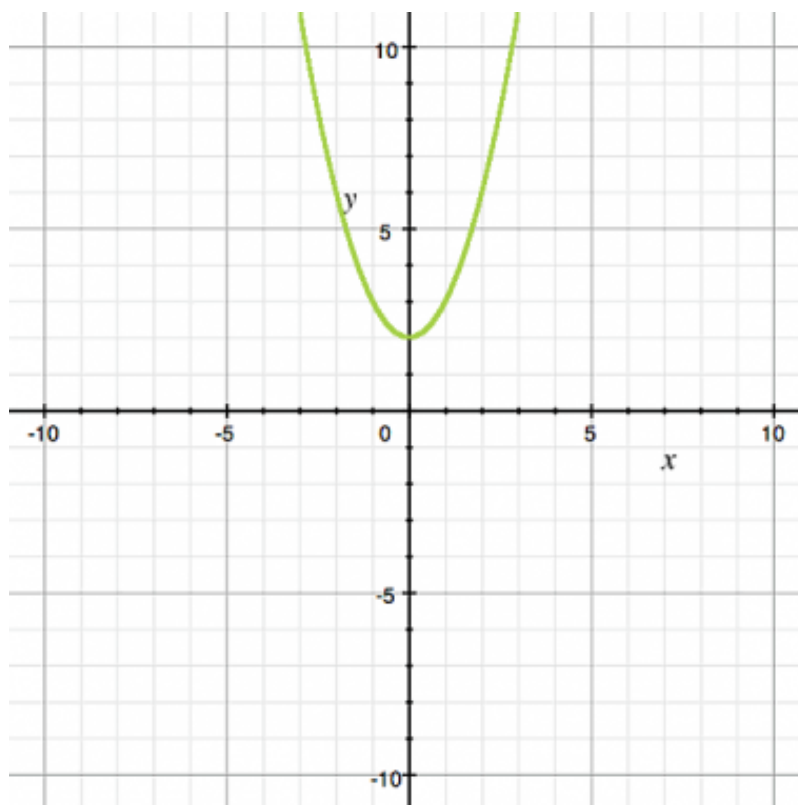
C)



D)

**Explanation:****Solution:** D. The graph shown in choice D has a value of -5 for c .

25)



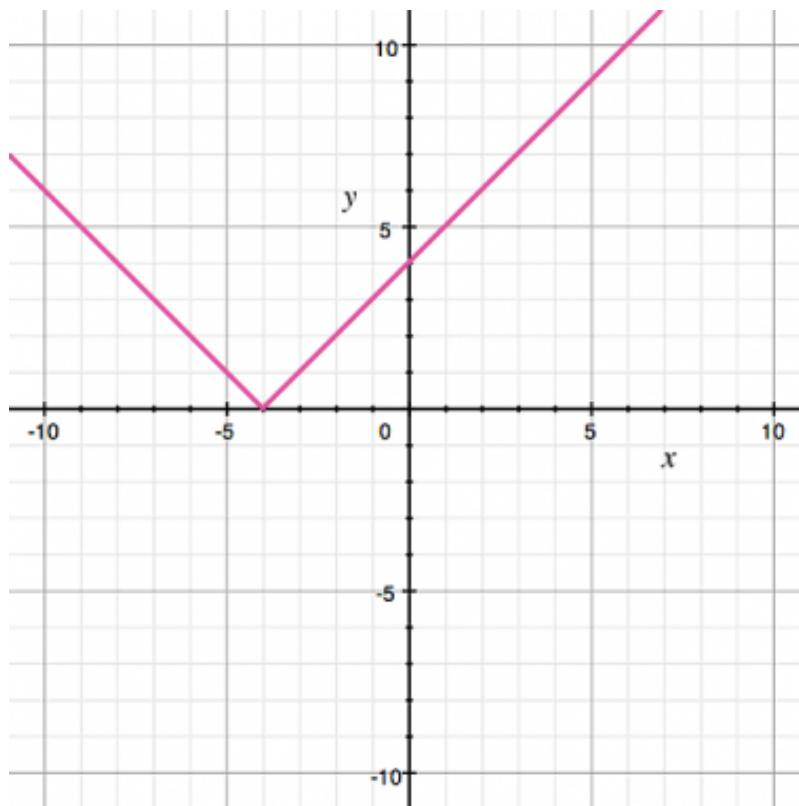
The graph of the function $y = x^2 + 2$ is shown. Which equation will shift the graph of the function to the right 2 units?

- A) $y = x^2$
- B) $y = x^2 + 4$
- C) $y = x^2 - 4$
- D) $y = (x - 2)^2 + 2$

Explanation:

The solution is $y = (x - 2)^2 + 2$. Squaring $(x - 2)$ rather than just x will shift the graph to the right 2 units. This can be seen by trying some test points and plotting the function.

26)



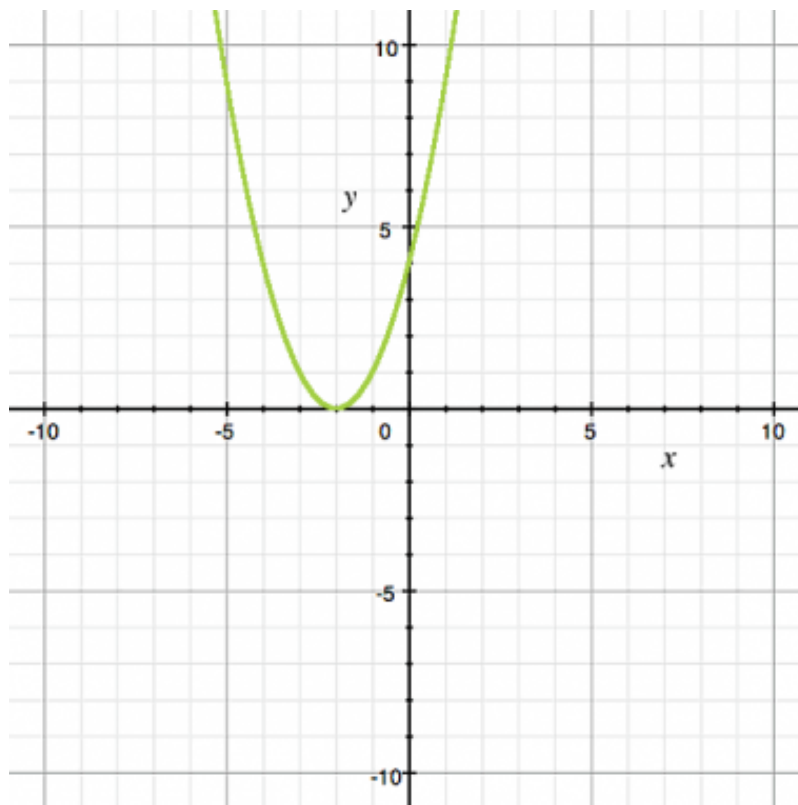
Write the equation of the graph shown.

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

Explanation:

Identify the vertex at $(-4, 0)$ to know that the absolute value function is translated 4 units to the left. The correct answer is $y = |x + 4|$.

27)



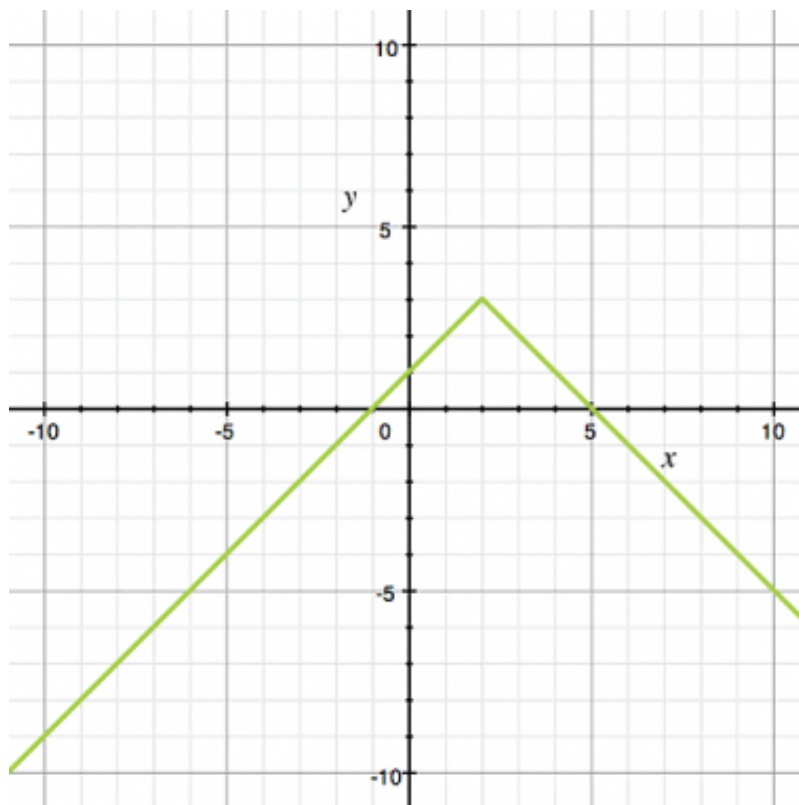
Which equation is graphed?

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

Explanation:

The solution is $y = (x + 2)^2$. B represents a shift to the right, C represents a shift down, and D represents a shift up.

28)



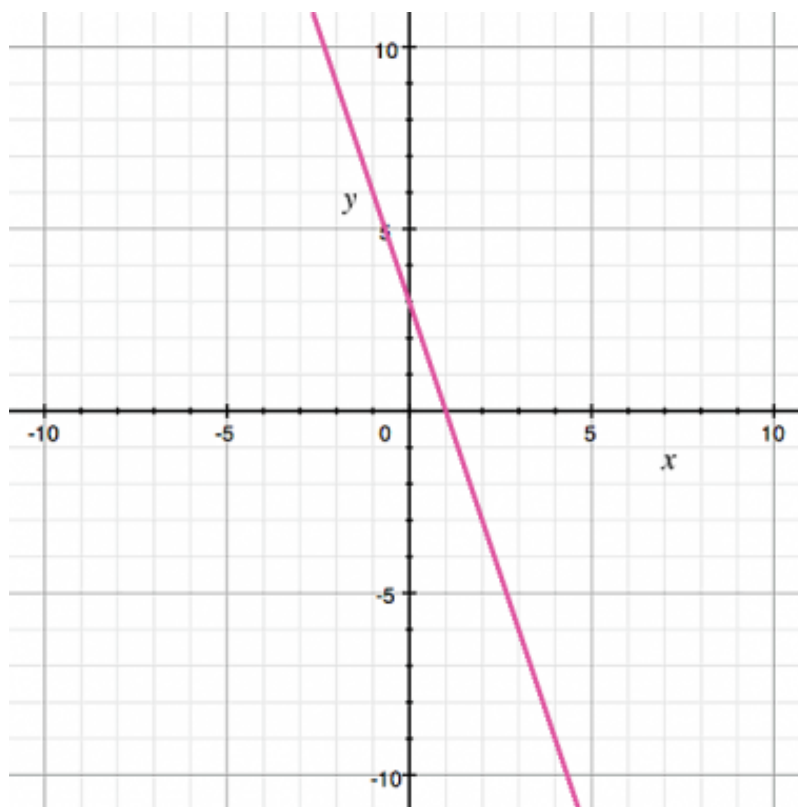
Which function best represents the graph shown?

- A) $g(x) = -|x + 2| + 3$
- B) $g(x) = -|x - 2| + 3$
- C) $g(x) = -|x + 2| - 3$
- D) $g(x) = -|x - 2| - 3$

Explanation:

The graph opens upside down and has been moved to the right 2 units and up 3 units. The correct equation is $g(x) = -|(x - 2)| + 3$

29)



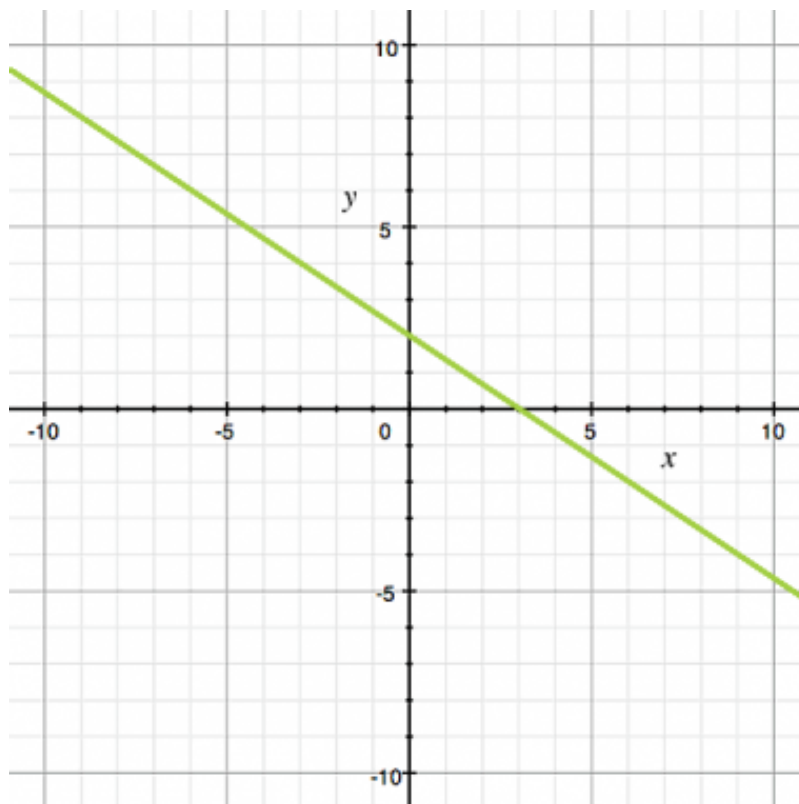
Which equation is graphed here?

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

Explanation:

$y = -3x + 3$ is correct. The graph passes through the points (0,3) and (1,0) having a y-intercept of 3 and a slope of -3.

30)



Which equation is graphed here?

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

Explanation:

$-\frac{2}{3}x + 2$ is correct. The y-intercept is 2 and the slope is $-\frac{2}{3}$ since you rise 2 and run to the left 3.