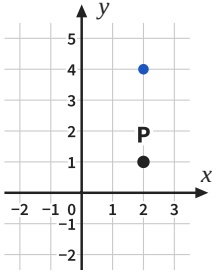
Graph transformations: where does the point go?

ANSWERS

1

(2, 1) is on the graph of $y = f(x)$. Where is it on the graph of $y = f(x) + 3$?



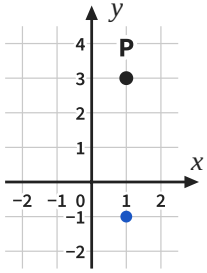
	x	y
before	2	1
after	2	4

(2, 4)

Answer

2

(1, 3) is on the graph of $y = f(x)$. Where is it on the graph of $y = f(x) - 4$?



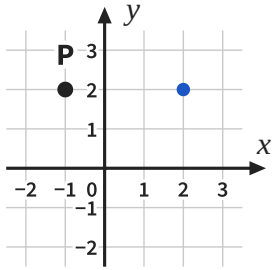
	x	y
before	1	3
after	1	−1

(1, −1)

Answer

3

(−1, 2) is on the graph of $y = f(x)$. Where is it on the graph of $y = f(x - 3)$?



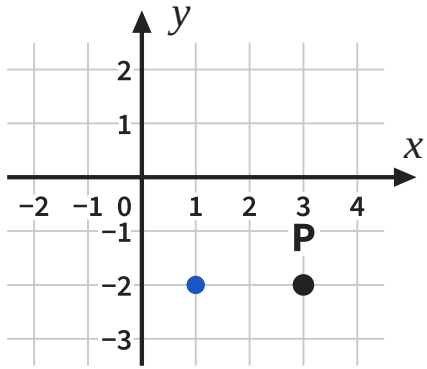
	x	y
before	−1	2
after	2	2

(2, 2)

Answer

4

(3, −2) is on the graph of $y = f(x)$. Where is it on the graph of $y = f(x + 2)$?

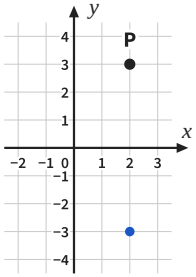


(1, −2)

Answer

5

(2, 3) is on the graph of $y = f(x)$. Where is it on the graph of $y = -f(x)$?



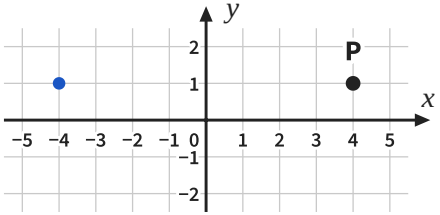
	x	y
before	2	3
after	2	−3

(2, −3)

Answer

6

(4, 1) is on the graph of $y = f(x)$. Where is it on the graph of $y = f(-x)$?



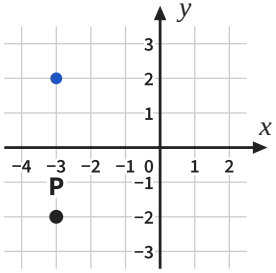
	x	y
before	4	1
after	−4	1

(−4, 1)

Answer

7

(−3, −2) is on the graph of $y = f(x)$. Where is it on the graph of $y = -f(x)$?



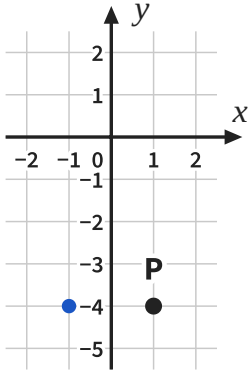
	x	y
before	−3	−2
after	−3	2

(−3, 2)

Answer

8

(1, −4) is on the graph of $y = f(x)$. Where is it on the graph of $y = f(-x)$?



(−1, −4)

Answer

Graph transformations: where does the point go? *further practice*

ANSWERS

9

(3, −2) is on the graph of $y = f(x)$.
Where is it on the graph of $y = f(x) + 5$?
And on the graph of $y = f(x - 1)$?

up 5; right 1

Answer *(3, 3) and (4, −2)*

10

(−4, 1) is on the graph of $y = f(x)$.
Where is it on the graph of $y = -f(x)$?
And on the graph of $y = f(-x)$?

y changes sign; x changes sign

Answer *(−4, −1) and (4, 1)*

11

$y = f(x)$ has a minimum point at (2, −5).
Find the minimum point of $y = f(x) + 3$ and of $y = f(x + 6)$.

up 3; left 6

Answer *(2, −2) and (−4, −5)*

12

$y = f(x)$ has a maximum point at (−1, 3).
Write the turning point of $y = -f(x)$ and of $y = f(-x)$. Is each a maximum or a minimum?

−f(x): the maximum becomes a minimum

f(−x): still a maximum

Answer *(−1, −3) min, (1, 3) max*

13

(2, 5) is on the graph of $y = f(x)$.
On a new graph it is at (−1, 5).
Write the equation of the new graph.

3 left, y the same: inside the bracket

Answer *y = f(x + 3)*

14

(4, 3) is on the graph of $y = f(x)$.
On a new graph it is at (−4, 3).
Write the equation of the new graph.

x changes sign: f(−x)

or 8 left: f(x + 8)

Answer *y = f(−x) or y = f(x + 8)*

15

The path of a ball is the graph of $y = f(x)$. Its highest point is (4, 9).
A second ball follows the graph of $y = f(x - 2)$. Where is its highest point?

right 2: inside the bracket, the opposite way

Answer *(6, 9)*

16

Zak says the point (0, 3) on $y = f(x)$ does not move when the graph is reflected to $y = f(-x)$.
Is he right? Explain.

x changes sign, and −0 = 0

(0, 3) is on the mirror line

Answer *Yes*