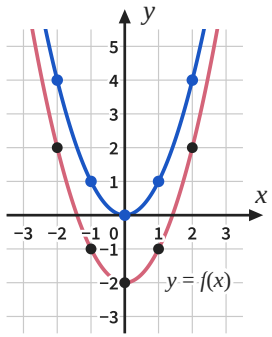
Graph transformations: translations

ANSWERS

1

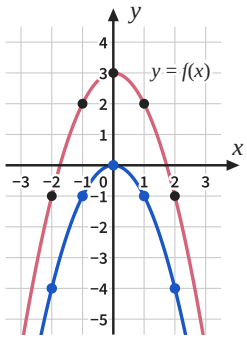
Sketch the graph of $y = f(x) + 2$.



x	−2	−1	0	1	2
$f(x)$	2	−1	−2	−1	2
$f(x) + 2$	4	1	0	1	4

2

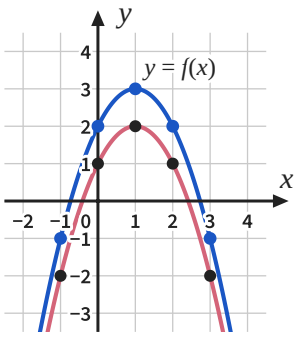
Sketch the graph of $y = f(x) - 3$.



x	−2	−1	0	1	2
$f(x)$	−1	2	3	2	−1
$f(x) - 3$	−4	−1	0	−1	−4

3

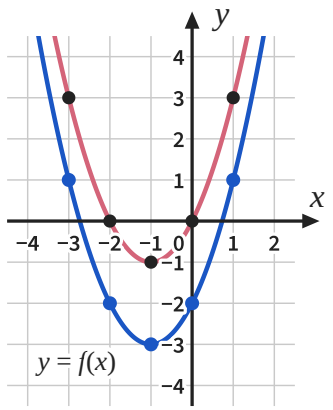
Sketch the graph of $y = f(x) + 1$.



x	−1	0	1	2	3
$f(x)$	−2	1	2	1	−2
$f(x) + 1$	−1	2	3	2	−1

4

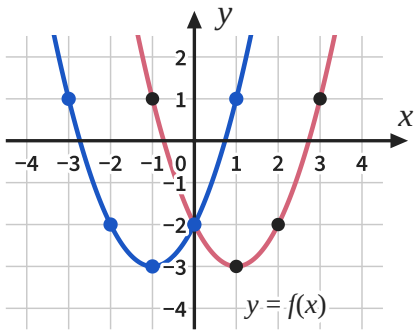
Sketch the graph of $y = f(x) - 2$.



The graph moves down 2

5

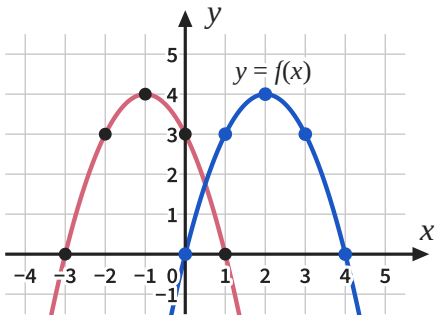
Sketch the graph of $y = f(x + 2)$.



x	−3	−2	−1	0	1
$x + 2$	−1	0	1	2	3
$f(x + 2)$	1	−2	−3	−2	1

6

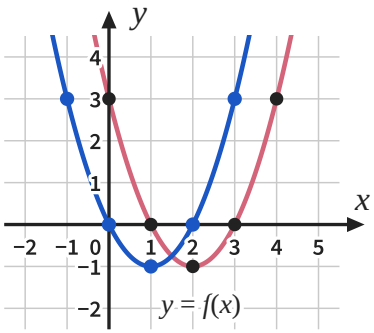
Sketch the graph of $y = f(x - 3)$.



x	0	1	2	3	4
$x - 3$	−3	−2	−1	0	1
$f(x - 3)$	0	3	4	3	0

7

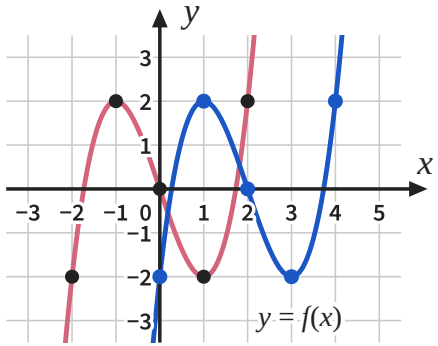
Sketch the graph of $y = f(x + 1)$.



x	−1	0	1	2	3
$x + 1$	0	1	2	3	4
$f(x + 1)$	3	0	−1	0	3

8

Sketch the graph of $y = f(x - 2)$.



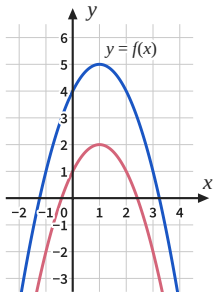
The graph moves right 2

Graph transformations: translations *further practice*

ANSWERS

9

Sketch the graph of $y = f(x) + 3$.

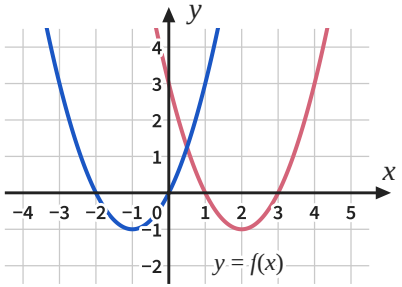


every point moves up 3

Answer up 3

10

Sketch the graph of $y = f(x + 3)$.



every point moves left 3

Answer left 3

11

P(2, −1) is on the graph of $y = f(x)$.
Where is P on the graph of $y = f(x) - 4$?
And on the graph of $y = f(x - 4)$?

down 4; right 4

Answer (2, −5) and (6, −1)

12

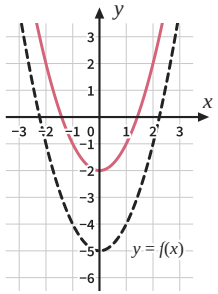
A water slide follows the graph of $y = f(x)$. Its top is T(−3, 5). Where is the top of the slide $y = f(x) + 2$?
And of $y = f(x + 5)$?

up 2; left 5

Answer (−3, 7) and (−8, 5)

13

The dashed graph is a translation of $y = f(x)$. Write its equation.

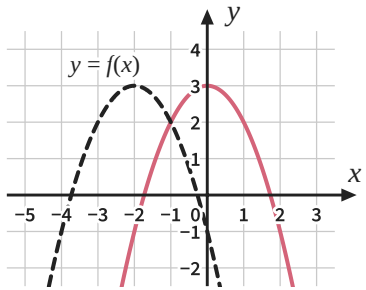


every point is 3 lower

Answer $y = f(x) - 3$

14

The dashed graph is a translation of $y = f(x)$. Write its equation.



every point is 2 to the left

Answer $y = f(x + 2)$

15

A skate ramp is the graph of $y = f(x)$. Its lowest point is (3, 1). Where is the lowest point of the ramp $y = f(x) + 2$?
And of $y = f(x - 4)$?

up 2; right 4

Answer (3, 3) and (7, 1)

16

Kai says the graph of $y = f(x - 5)$ is the graph of $y = f(x)$ moved 5 to the left. (2, 0) is on $y = f(x)$. Use it to show Kai is wrong.

$x - 5 = 2$ when $x = 7$

so $f(x - 5) = f(2) = 0$ at $x = 7$

Answer (2, 0) goes to (7, 0): 5 right