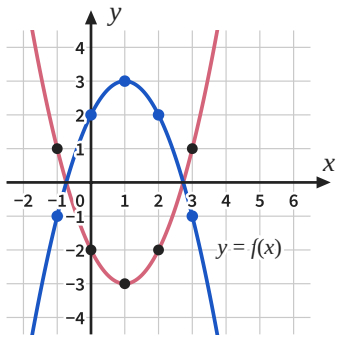
Graph transformations: reflections

ANSWERS

1

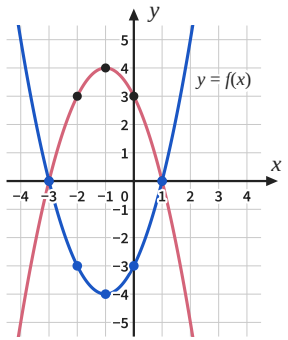
Sketch the graph of $y = -f(x)$.



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

2

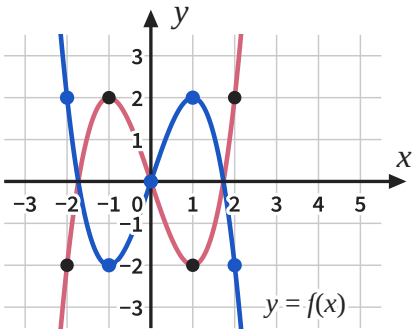
Sketch the graph of $y = -f(x)$.



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

3

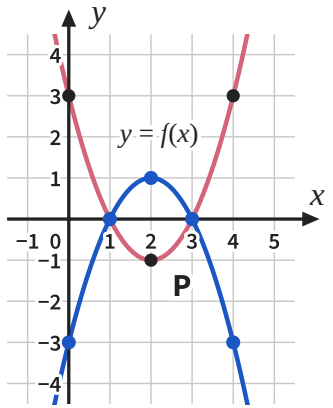
Sketch the graph of $y = -f(x)$.



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

4

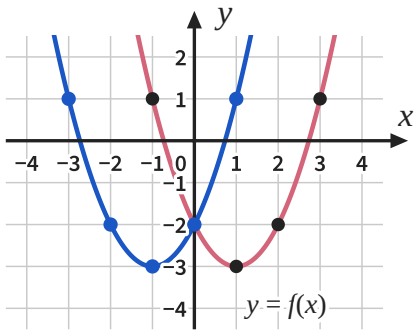
Sketch the graph of $y = -f(x)$.



P goes to (2, 1)

5

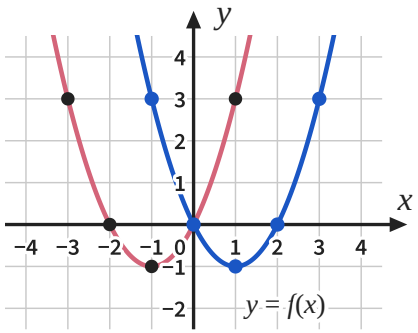
Sketch the graph of $y = f(-x)$.



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

6

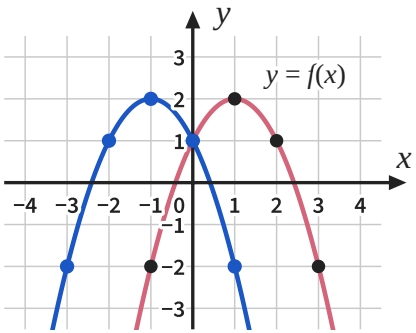
Sketch the graph of $y = f(-x)$.



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

7

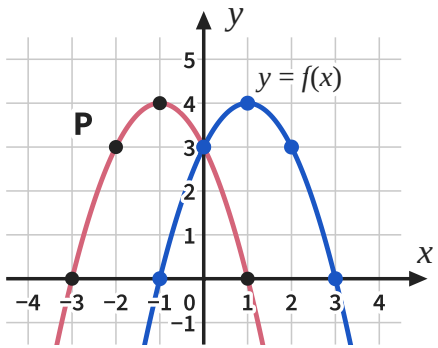
Sketch the graph of $y = f(-x)$.



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

8

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



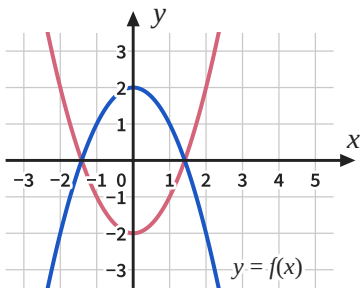
P goes to (2, 3)

Graph transformations: reflections *further practice*

ANSWERS

9

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

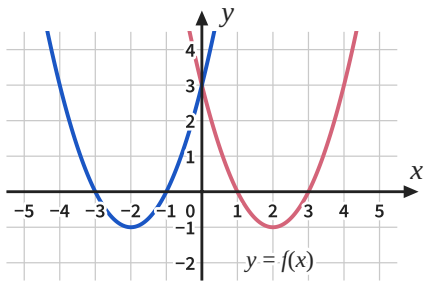


every y changes sign

Answer reflected in the x axis

10

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



every x changes sign

Answer reflected in the y axis

11

P(4, −3) is on the graph of $y = f(x)$.
Where is P on the graph of $y = -f(x)$?
And on the graph of $y = f(-x)$?

y changes sign; x changes sign

Answer (4, 3) and (−4, −3)

12

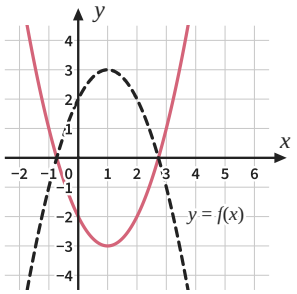
The arch of a bridge is the graph of $y = f(x)$, with its top at T(−2, 5).
The river is the x axis. Where is T in the reflection $y = -f(x)$? Where is the top of the arch $y = f(-x)$?

y changes sign; x changes sign

Answer (−2, −5) and (2, 5)

13

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

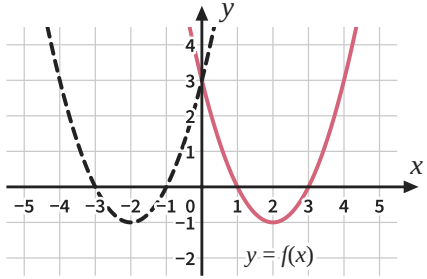


the mirror line is the x axis

Answer $y = -f(x)$

14

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



the mirror line is the y axis

Answer $y = f(-x)$

15

$y = f(x)$ has a minimum point at (3, −2).
Write the turning point of $y = -f(x)$ and of $y = f(-x)$. Is each one a maximum or a minimum?

$-f(x)$: the minimum becomes a maximum

$f(-x)$: still a minimum

Answer (3, 2) max, (−3, −2) min

16

$f(x) = x^2 - 4$. Ben says the graph of $y = f(-x)$ is the same as the graph of $y = f(x)$. Is he right? Explain.

$(-x)^2 - 4 = x^2 - 4$

the graph is the same either side of the y axis

Answer Yes