



# EXAM PAPERS PRACTICE

GCSE OCR Math J560

Transformation of Graph

Answers

*"We will help you to  
achieve A Star "*



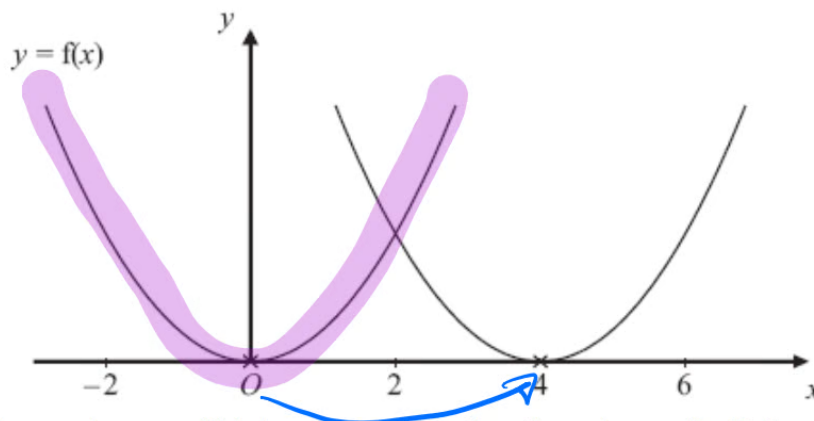
**Answer 1**

The curve with equation  $y = f(x)$  is transformed to give the curve with equation  $y = f(x) - 4$

(b) Describe the transformation.

TRANSLATION BY  $-4$  UNITS IN  $y$  DIRECTION

**Answer 2**



The curve with equation  $y = f(x)$  is translated so that the point at  $(0, 0)$  is mapped onto the point  $(4, 0)$ .

Find an equation of the translated curve.

TRANSLATION  $+4$  UNITS  
IN  $x$  DIRECTION

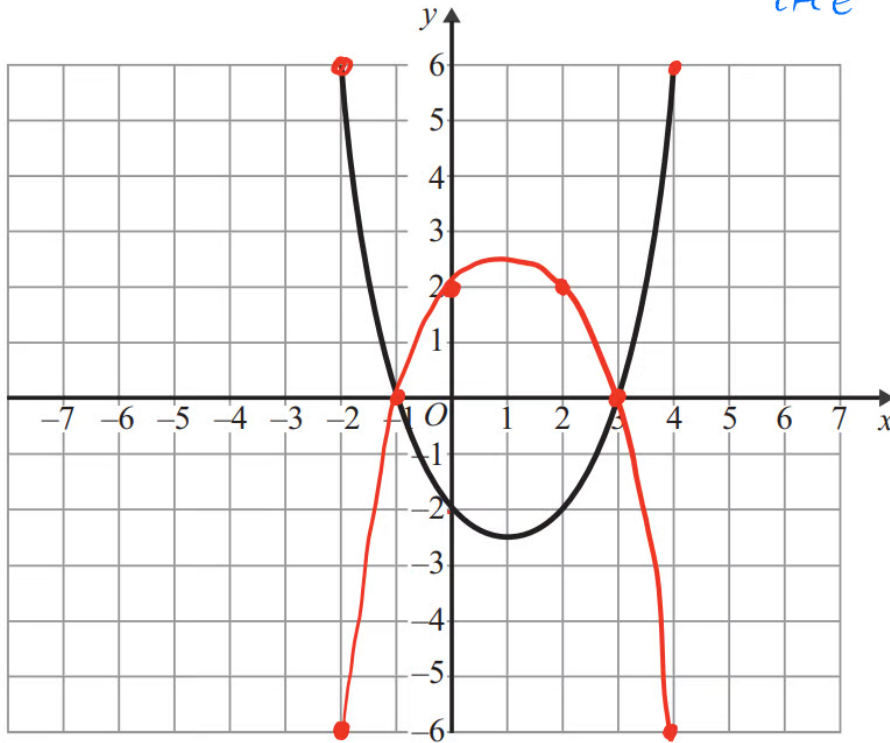
$$\underline{y = f(x - 4)}$$



**Answer 3**

(b) On this grid, sketch the graph of  $y = -f(x)$

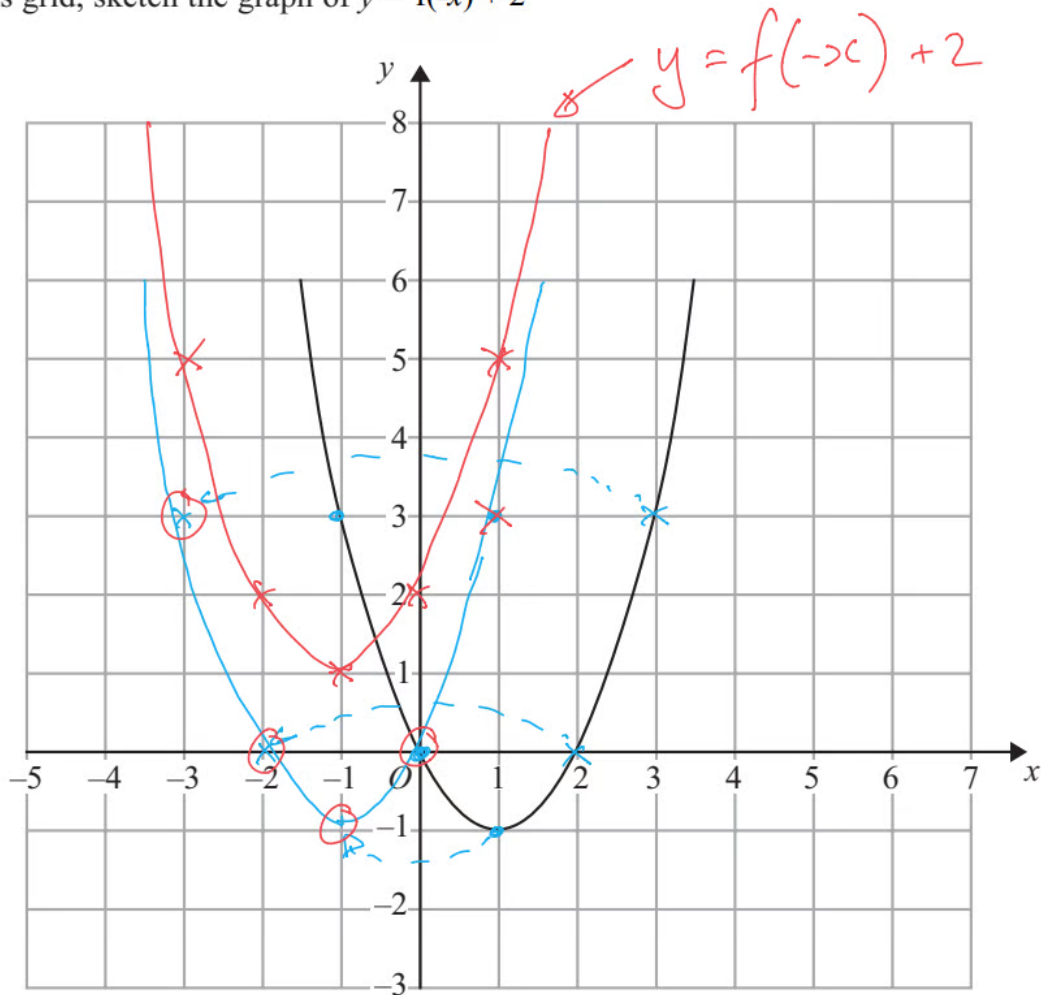
REFLECTION IN THE x AXIS





**Answer 4**

(b) On this grid, sketch the graph of  $y = f(-x) + 2$



$$y = f(-x) + 2$$



REFLECTION

IN  $y$ -AXIS



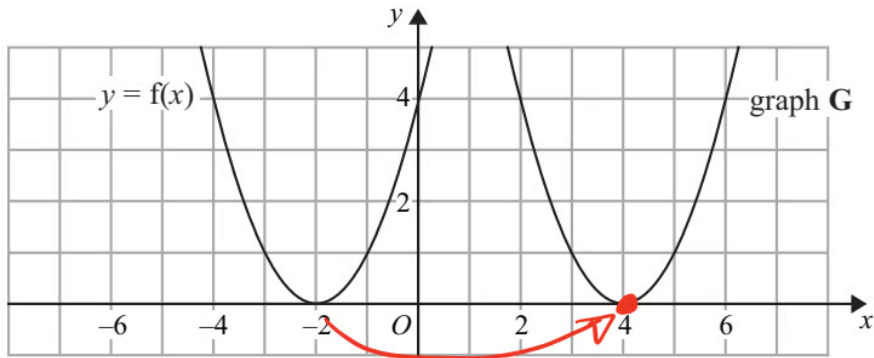
TRANSLATION +2 UNITS

IN  $y$ -DIRECTION



**Answer 5**

The graph of  $y = f(x)$  is shown on the grid.



The graph **G** is a translation of the graph of  $y = f(x)$ .

(b) Write down the equation of graph **G**.

$$y = f(x - a)$$

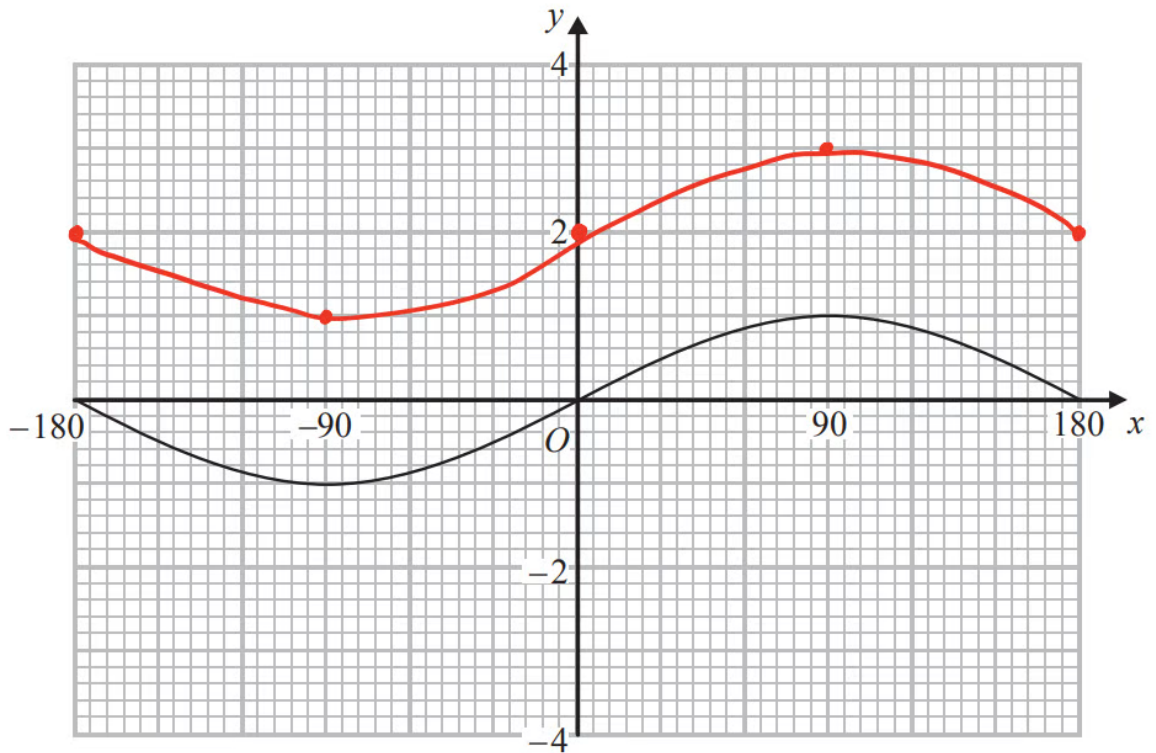
+a  
→

$$y = f(x - 6)$$



**Answer 6**

Here is the graph of  $y = \sin x^\circ$  for  $-180 \leq x \leq 180$



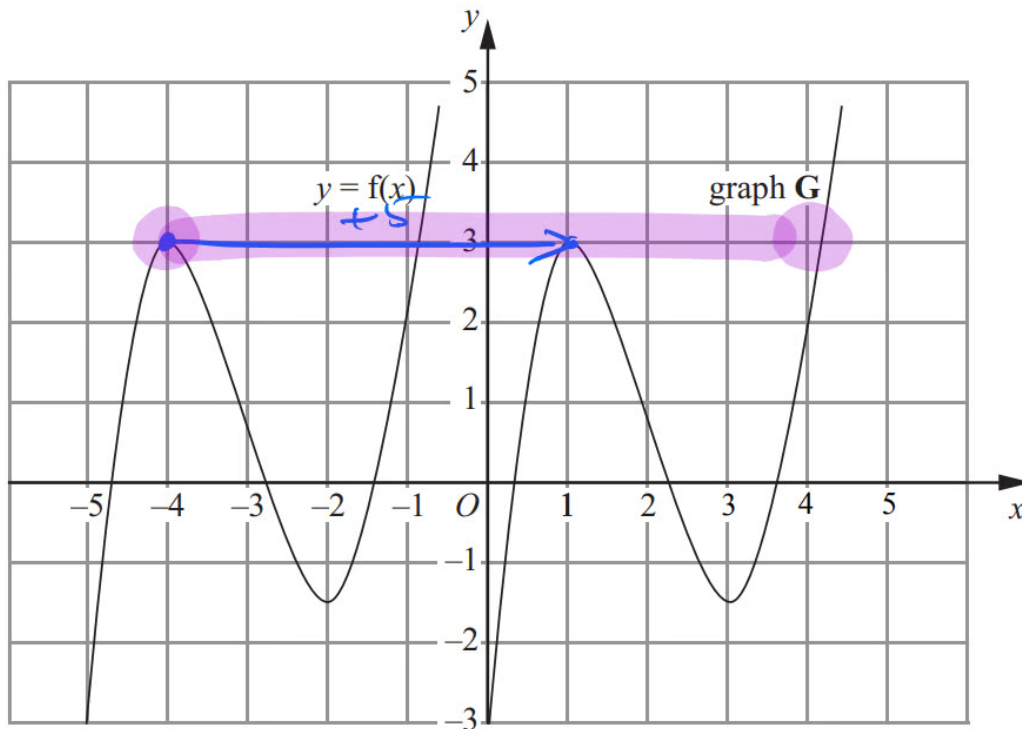
(a) On the grid above, sketch the graph of  $y = \sin x^\circ + 2$  for  $-180 \leq x \leq 180$

↳ TRANSLATION  
UP 2 UNITS



**Answer 7**

The graph of  $y = f(x)$  is shown on the grid.



The graph **G** is a translation of the graph of  $y = f(x)$ .

- (a) Write down, in terms of  $f$ , the equation of graph **G**.

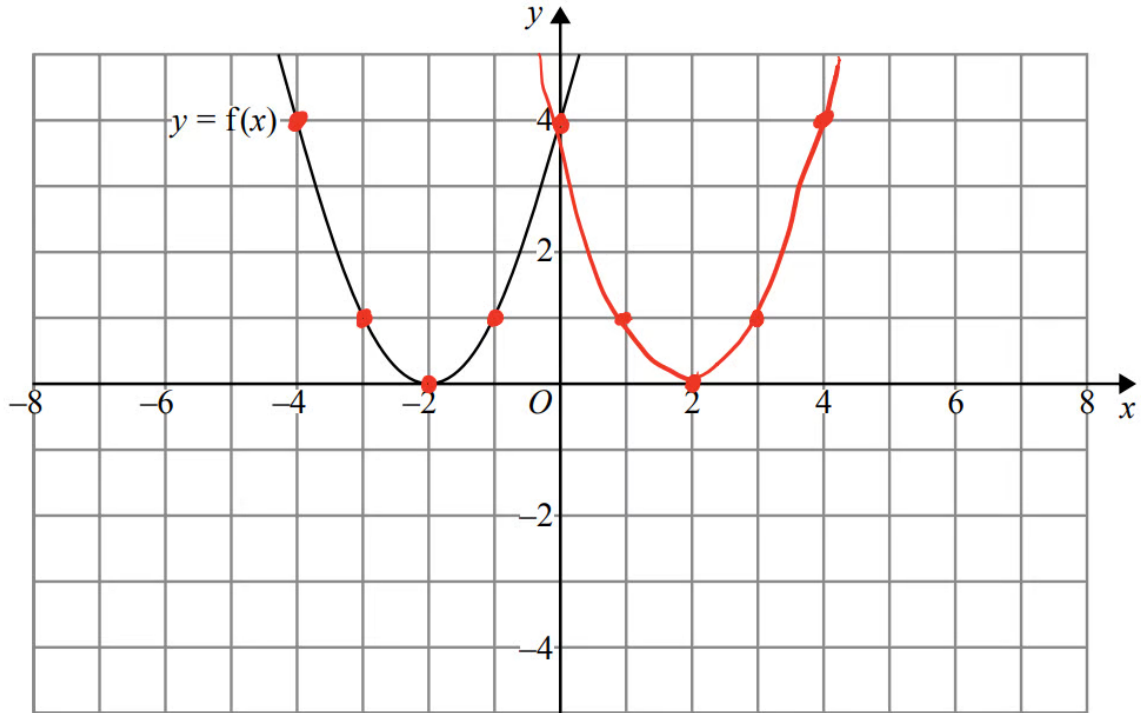
TRANSLATION, +5 UNITS IN  $x$ -DIRECTION

$$\underline{\underline{y = f(x - 5)}}$$



**Answer 8**

The graph of  $y = f(x)$  is shown on both grids below.



(a) On the grid above, sketch the graph of  $y = f(-x)$

REFLECTION IN y-AXIS



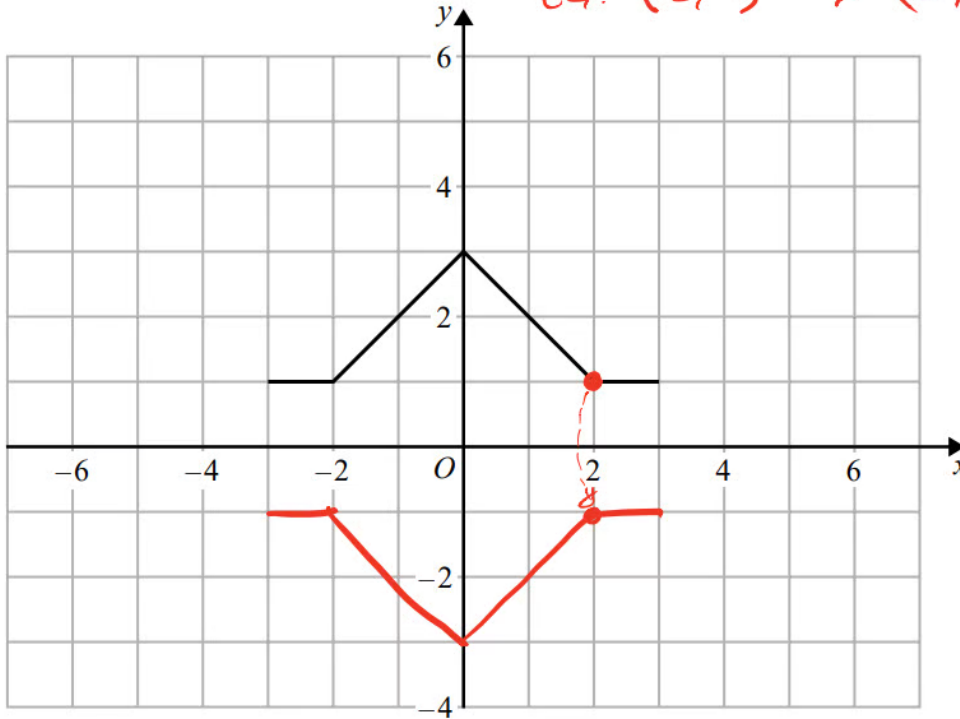


**Answer 9**

The graph of  $y = f(x)$  is shown on both grids below.

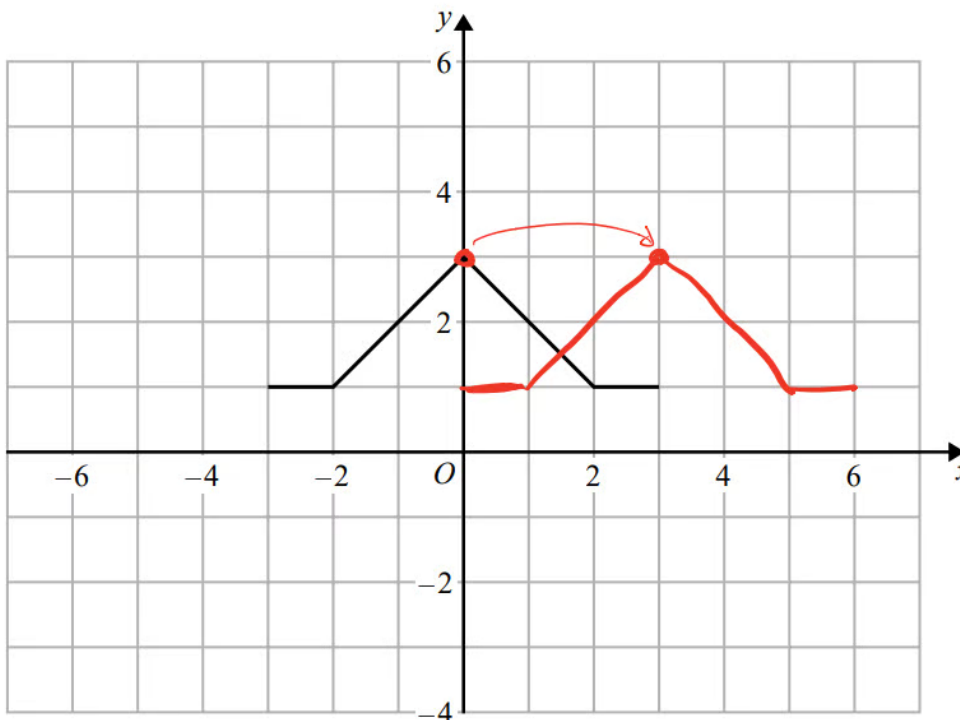
(i) On this grid, draw the graph of  $y = -f(x)$

REFLECTION IN  $x$  AXIS  
EG.  $(2, 1) \rightarrow (2, -1)$



(ii) On the grid below, draw the graph of  $y = f(x - 3)$

TRANSLATION BY 3 UNITS IN  $x$  DIRECTION





**Answer 10**

- (b) Write down the coordinates of the minimum point of the curve with the equation  
 $y = f(x + 5) + 6$

TRANSLATION BY -5 UNITS IN  $x$  DIRECTION  
BY +6 UNITS IN  $y$  DIRECTION

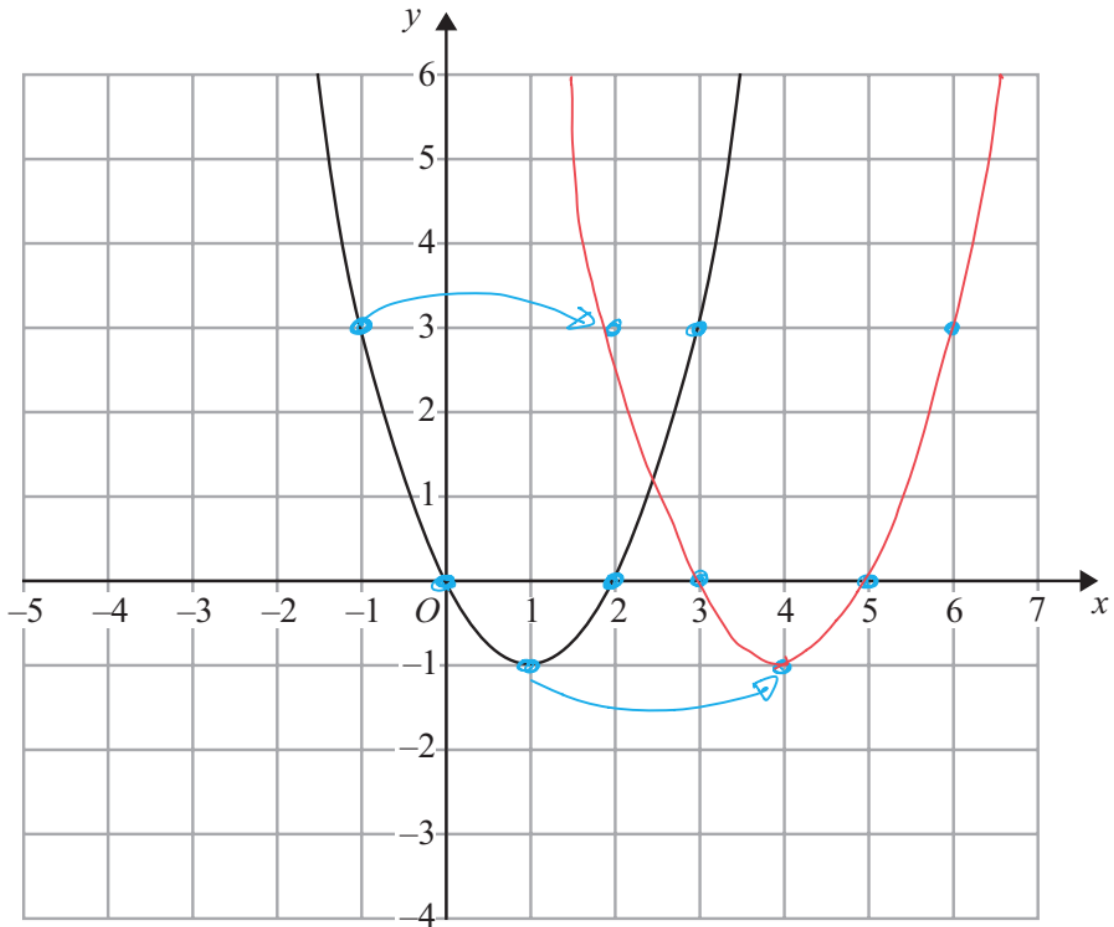
$(-2, 2)$



**Answer 11**

The graph of  $y = f(x)$  is shown on each of the grids.

(a) On this grid, sketch the graph of  $y = f(x - 3)$



$$y = f(x - 3)$$

TRANSLATION + 3 UNITS

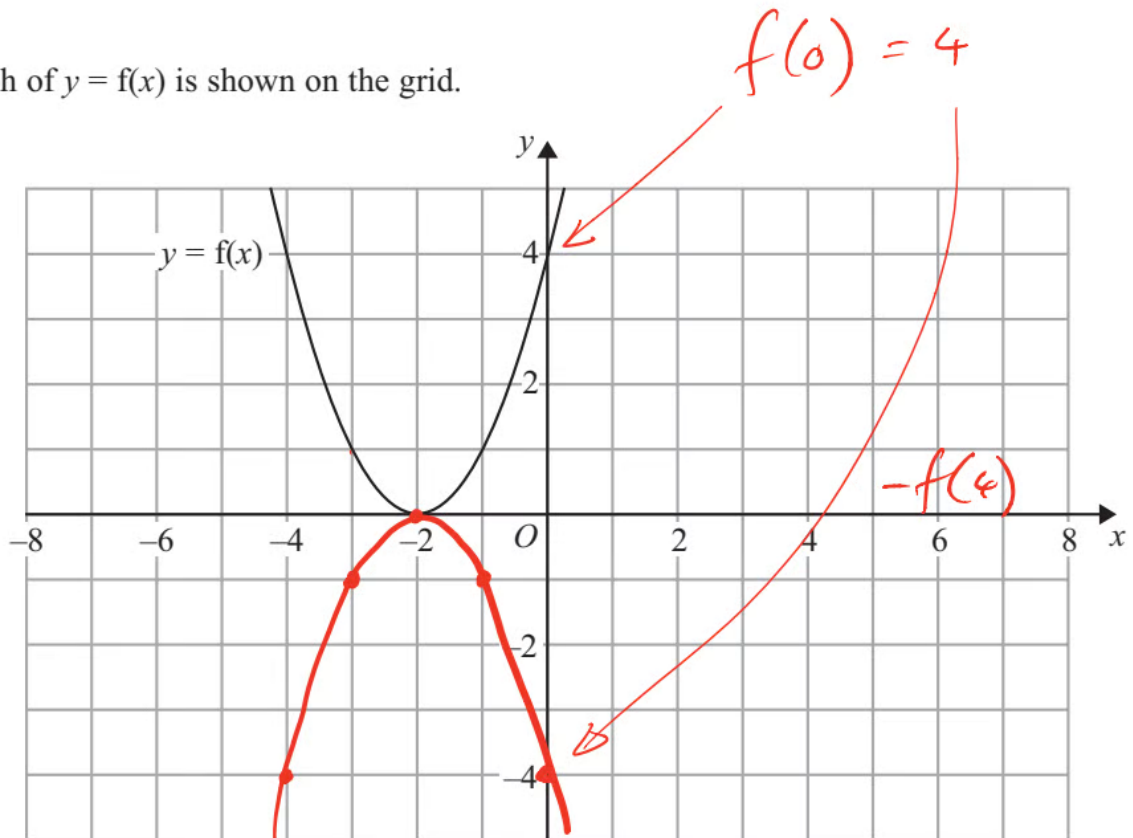
IN  $x$ -DIRECTION



**Answer 12**

$y = f(x)$

The graph of  $y = f(x)$  is shown on the grid.

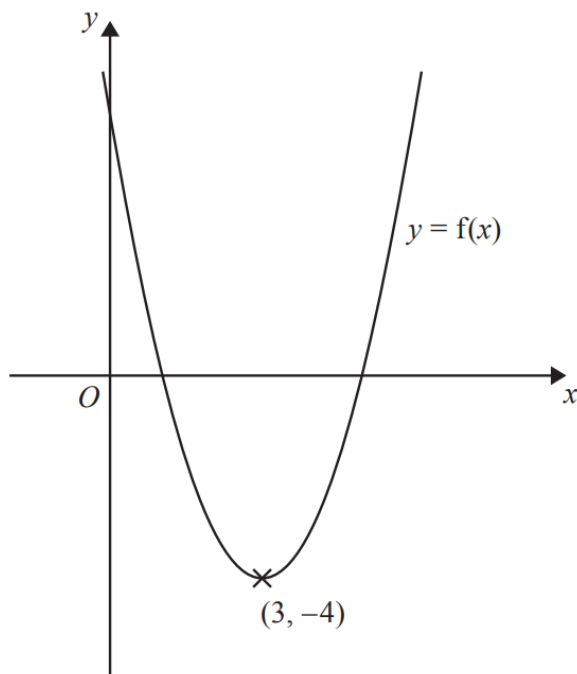


(a) On the grid above, sketch the graph of  $y = -f(x)$ .

REFLECTION IN  $x$ -AXIS



Answer 13



The diagram shows part of the curve with equation  $y = f(x)$ .  
The coordinates of the minimum point of this curve are  $(3, -4)$

Write down the coordinates of the minimum point of the curve with equation

(i)  $y = f(x) + 3$     TRANSLATION +3 UNITS IN  $y$ -DIRECTION  
(3, -1)

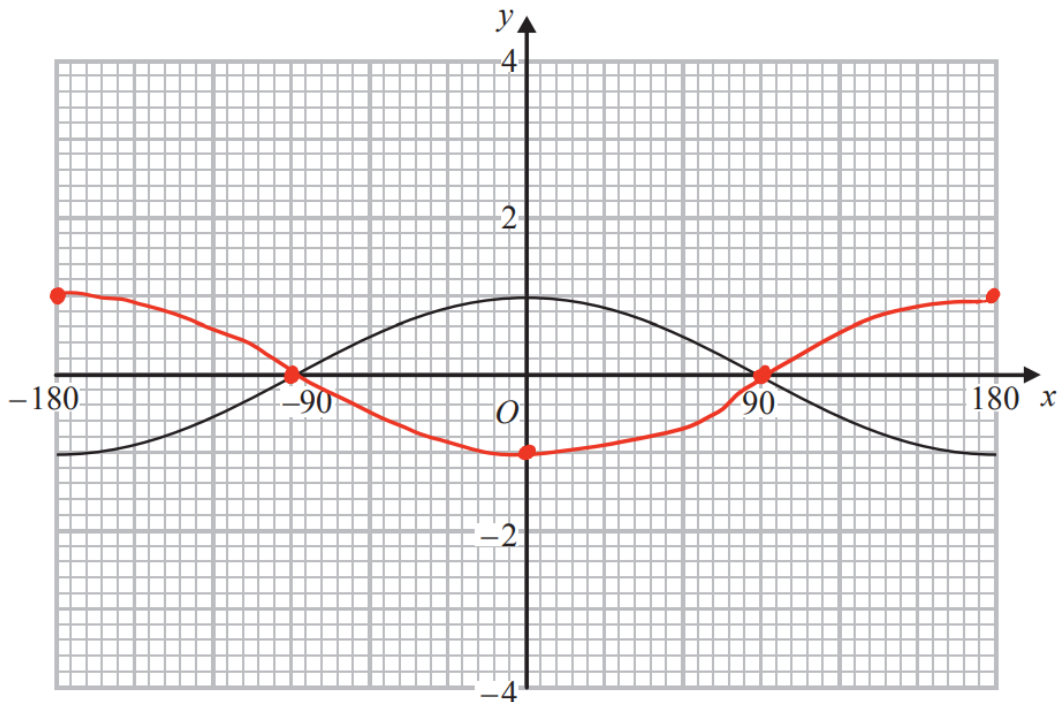
(ii)  $y = f(x + 2)$     TRANSLATION -2 UNITS IN  $x$ -DIRECTION  
(1, -4)

(iii)  $y = f(-x)$     REFLECTION IN  $y$ -AXIS  
(-3, -4)



**Answer 14**

Here is the graph of  $y = \cos x^\circ$  for  $-180 \leq x \leq 180$



(b) On the grid above, sketch the graph of  $y = -\cos x^\circ$  for  $-180 \leq x \leq 180$

↳ REFLECTION IN x AXIS



**Answer 15**

The graph of  $y = f(x)$  has a maximum point at  $(-4, 3)$ .

(b) Write down the coordinates of the maximum point of the graph of  $y = f(-x)$ .

REFLECTION IN  $y$ -AXIS

(....., .....)  
4 3