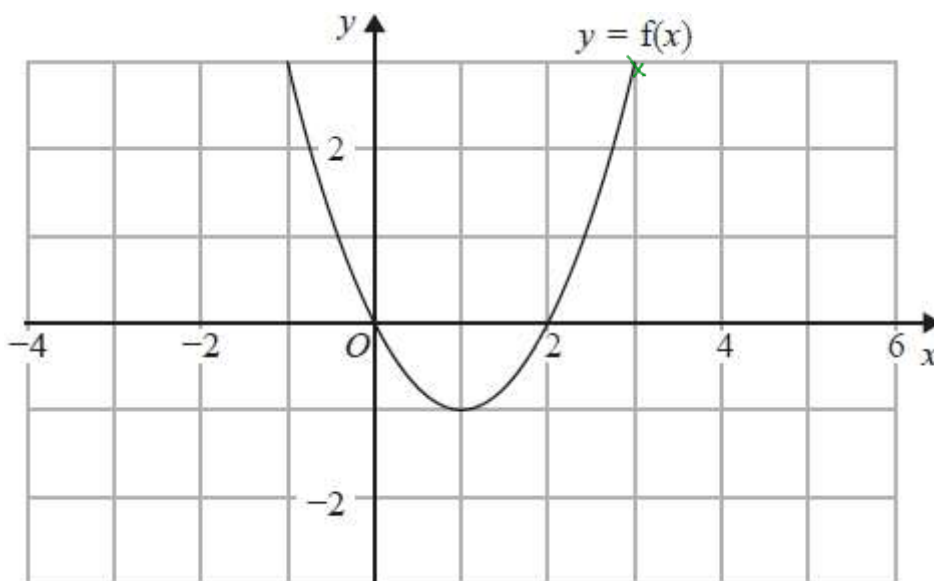


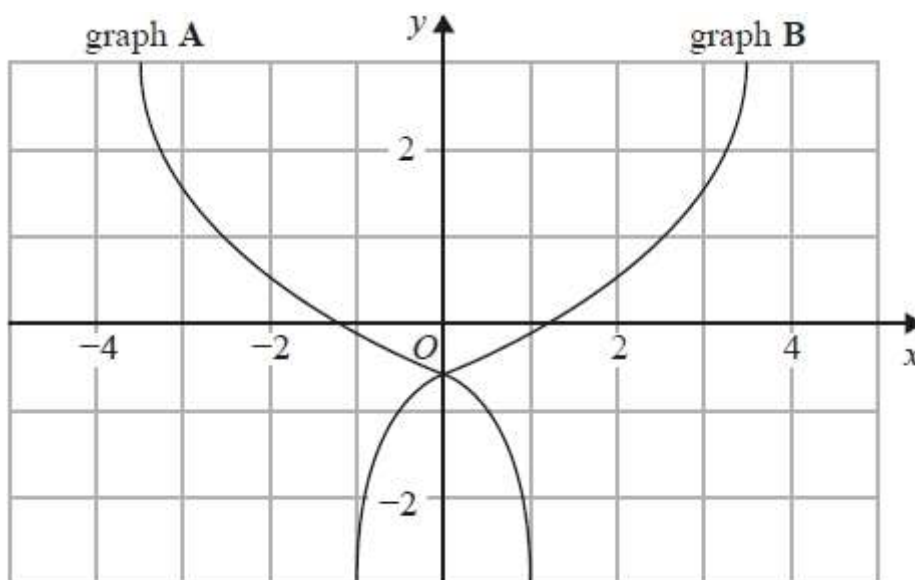
GCSE QUESTIONS WITH CLUES

Q1. NON-CALCULATOR

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



- (a) On the grid above, sketch the graph of $y = f(x - 2)$ *Horizontal translation*



On the grid, graph **A** has been reflected to give graph **B**. *Horizontal reflection (in y-axis)*

The equation of graph **A** is $y = g(x)$

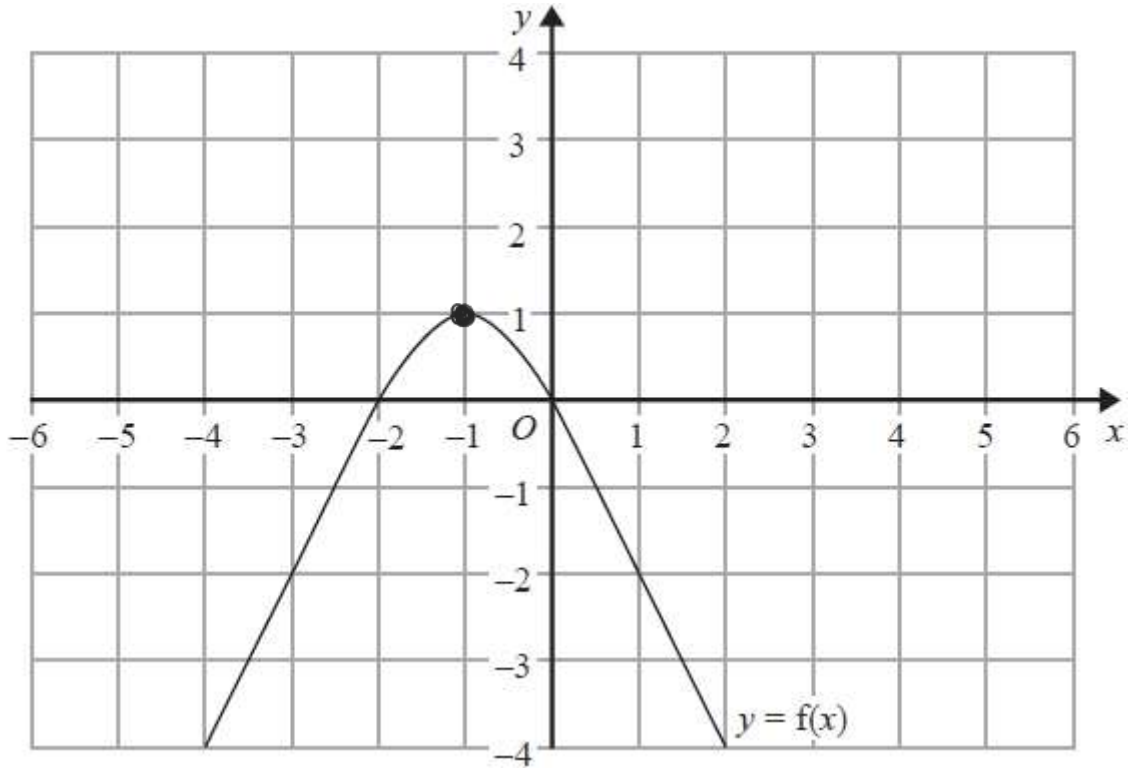
- (b) Write down the equation of graph **B**.

(1)

.....
(1)
(Total for question = 2 marks)

Q2. NON-CALCULATOR

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



- (a) On the grid, sketch the graph of $y = f(x - 1)$ *translated horizontally*

(1)

The graph of $y = f(x)$ has a turning point at the point $(-1, 1)$ •

- (b) Write down the coordinates of the turning point of the graph of $y = f(-x) + 2$

reflected horizontally

translated vertically

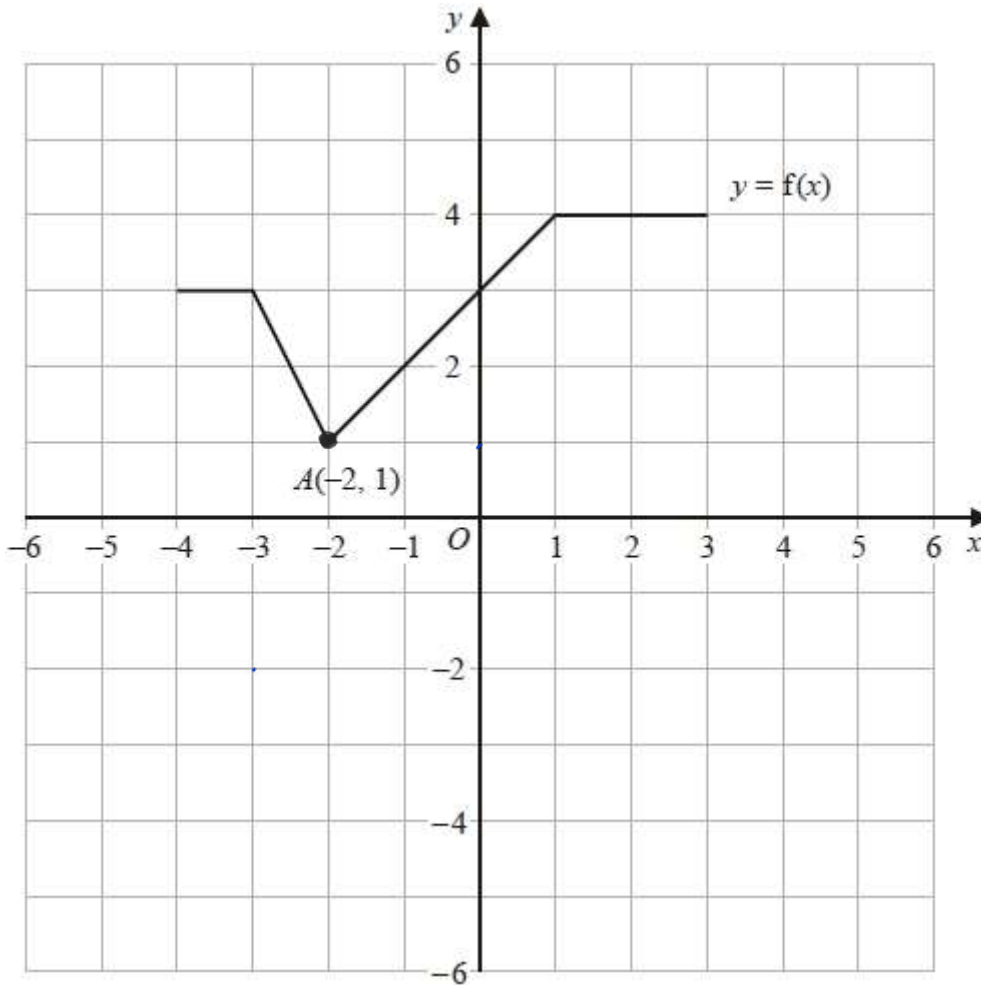
(..... ,)

(1)

(Total for question = 2 marks)

Q3. NON-CALCULATOR

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



(a) On the grid, draw the graph with equation $y = f(x + 1) - 3$

horizontal translation — *vertical translation*

(2)

Point $A(-2, 1)$ lies on the graph of $y = f(x)$. ●

When the graph of $y = f(x)$ is transformed to the graph with equation $y = f(-x)$, point A is mapped to point B .

(b) Write down the coordinates of point B .

reflected horizontally

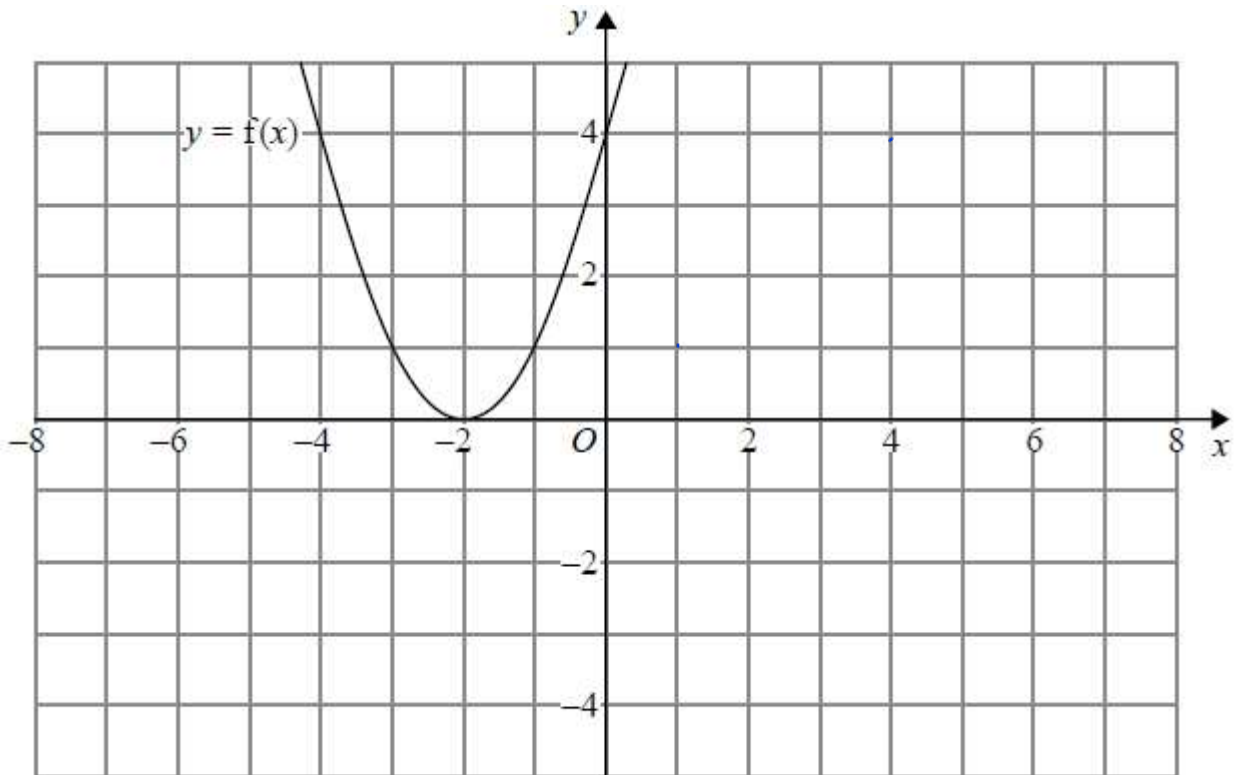
(..... ,)

(1)

(Total for question = 3 marks)

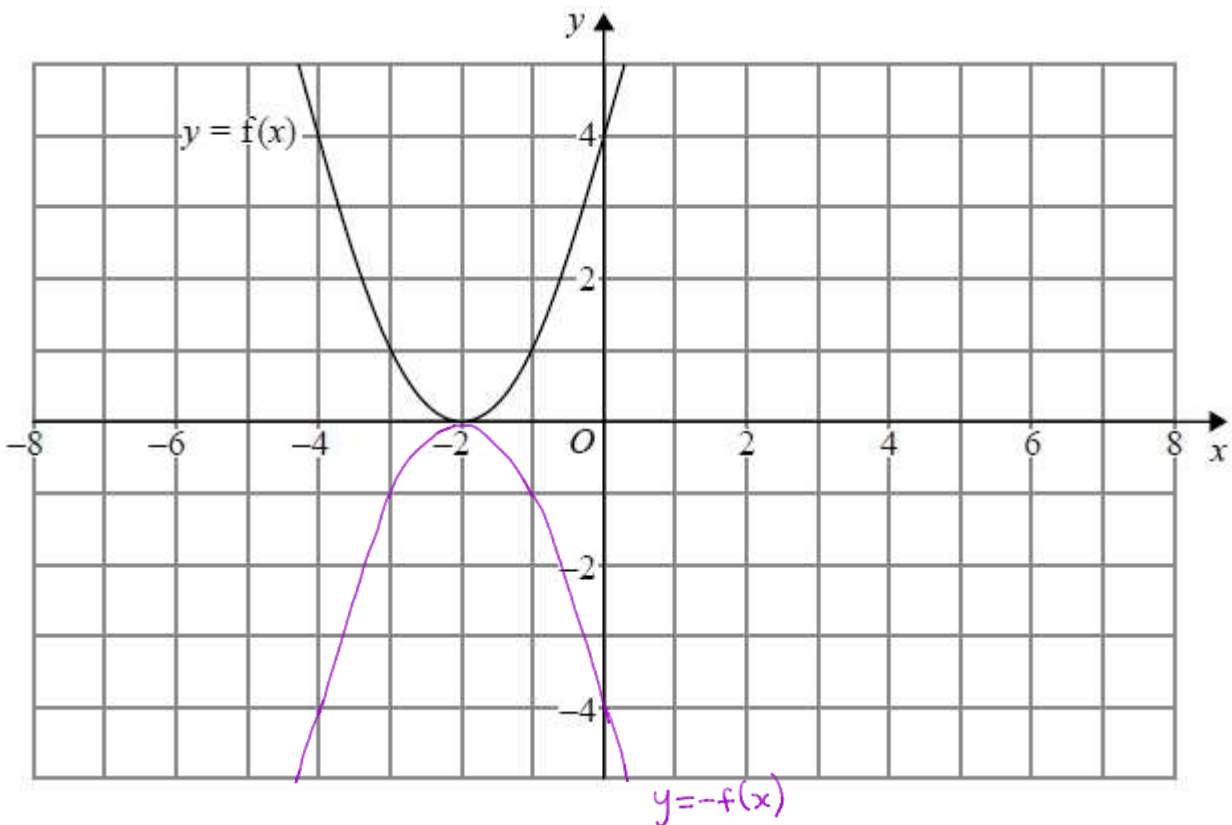
Q4. CALCULATOR ALLOWED

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



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

(1)



- (b) On this grid, sketch the graph of $y = -f(x) + 3$
vertical reflection — *vertical translation*

(1)

(Total for question = 2 marks)

Q5. CALCULATOR ALLOWED

The graph of $y = f(x)$ is transformed to give the graph of $y = -f(x + 3)$

The point A on the graph of $y = f(x)$ is mapped to the point P on the graph of $y = -f(x + 3)$

The coordinates of point A are $(9, 1)$
Find the coordinates of point P .

vertical reflection
horizontal translation



(.....,))

(Total for question is 2 marks)

Q6. CALCULATOR ALLOWED

The graph of the curve C with equation $y = f(x)$ is transformed to give the graph of the curve S with equation $y = f(-x) - 3$

The point on C with coordinates $(7, 2)$ is mapped to the point Q on S .

Find the coordinates of Q .

horizontal reflection
vertical translation



(.....,))

(Total for question = 2 marks)