Transformations of Graphs

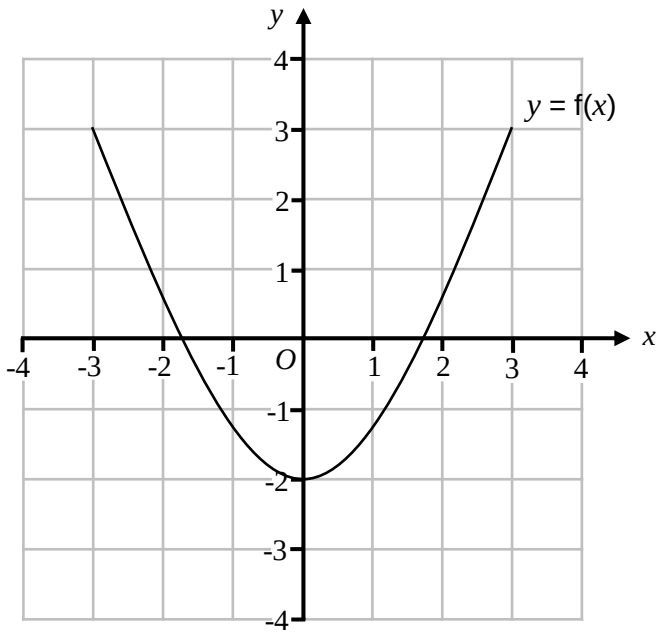
SCAN ME

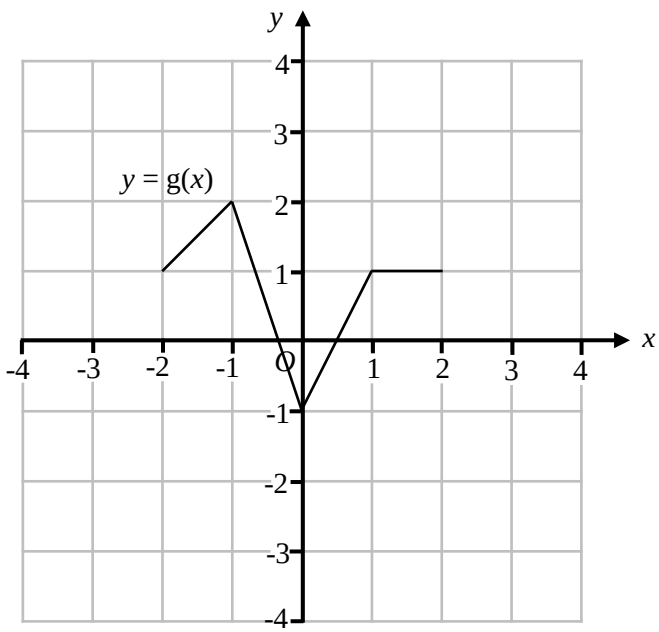
REVISE THIS TOPIC

CHECK YOUR ANSWERS

SCAN ME

1 The graphs of $y = f(x)$ and $y = g(x)$ are shown on the grids below.





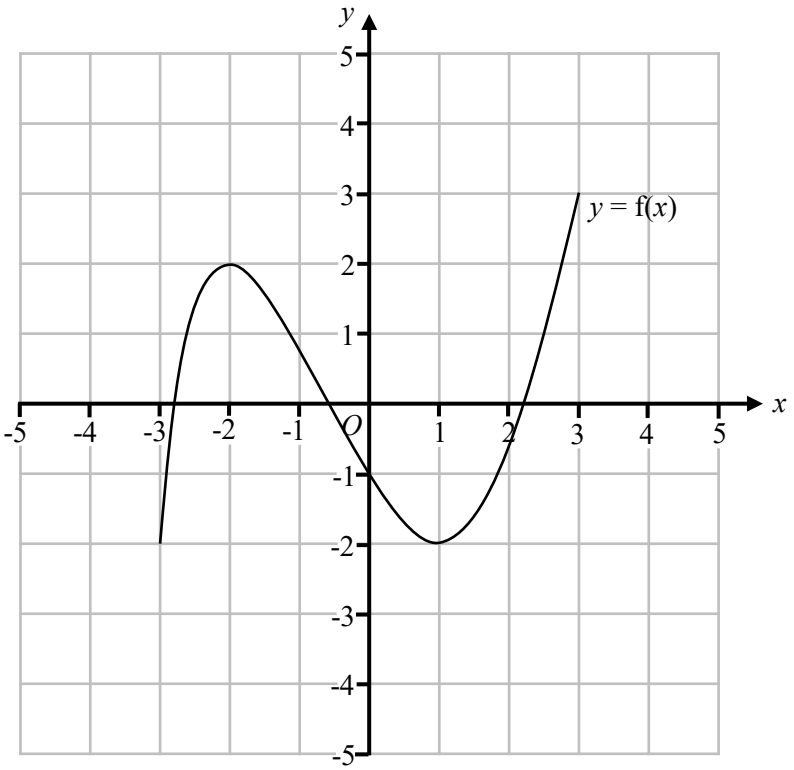
(a) Draw the graph of $y = f(x) + 1$ onto the first grid. **(1)**

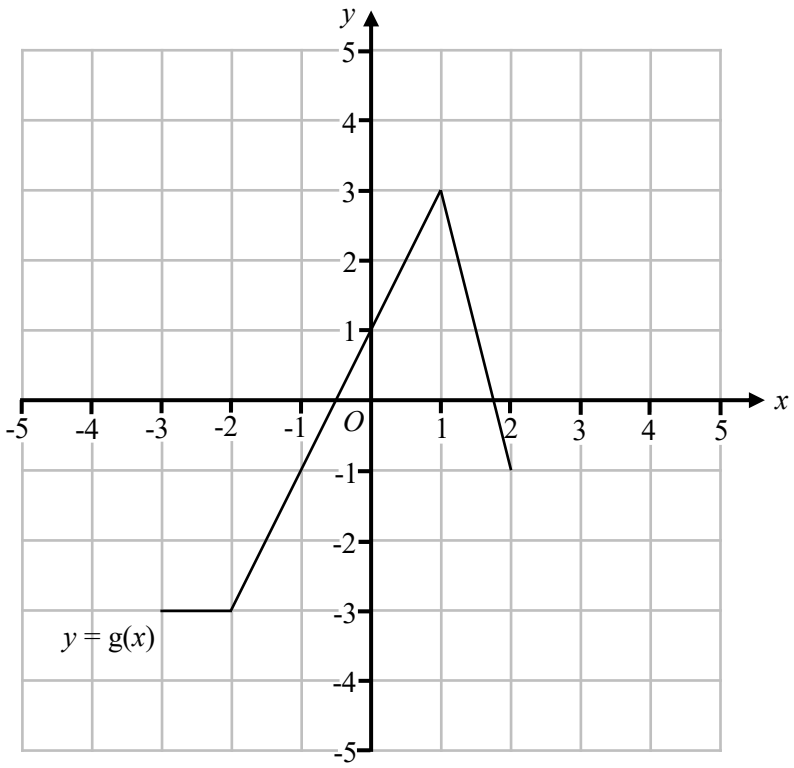
(b) Draw the graph of $y = g(x) - 2$ onto the second grid. **(1)**

(Total for Question 1 is 2 marks)

1

2 The graphs of $y = f(x)$ and $y = g(x)$ are shown on the grids below.





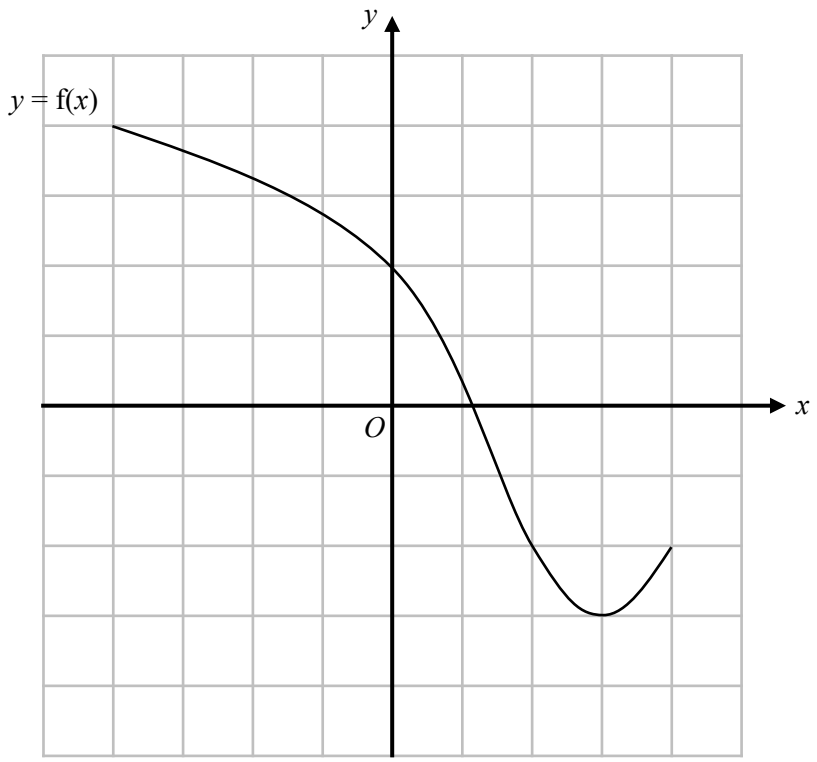
(a) Draw the graph of $y = f(x + 1)$ onto the first grid. **(1)**

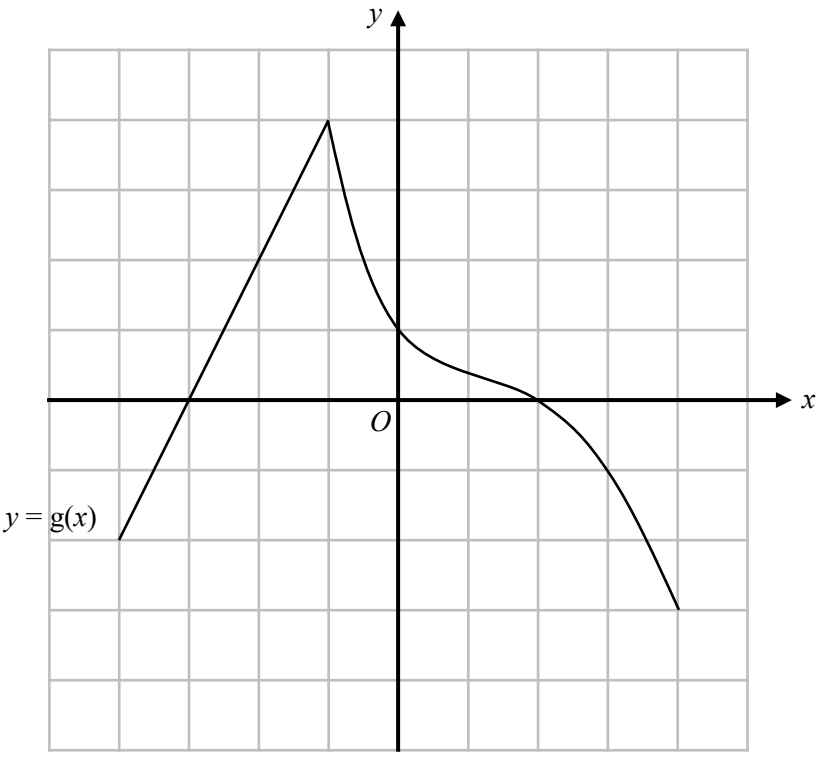
(b) Draw the graph of $y = g(x - 2)$ onto the second grid. **(1)**

(Total for Question 2 is 2 marks)

Solutions

3 The graphs of $y = f(x)$ and $y = g(x)$ are shown on the grids below.



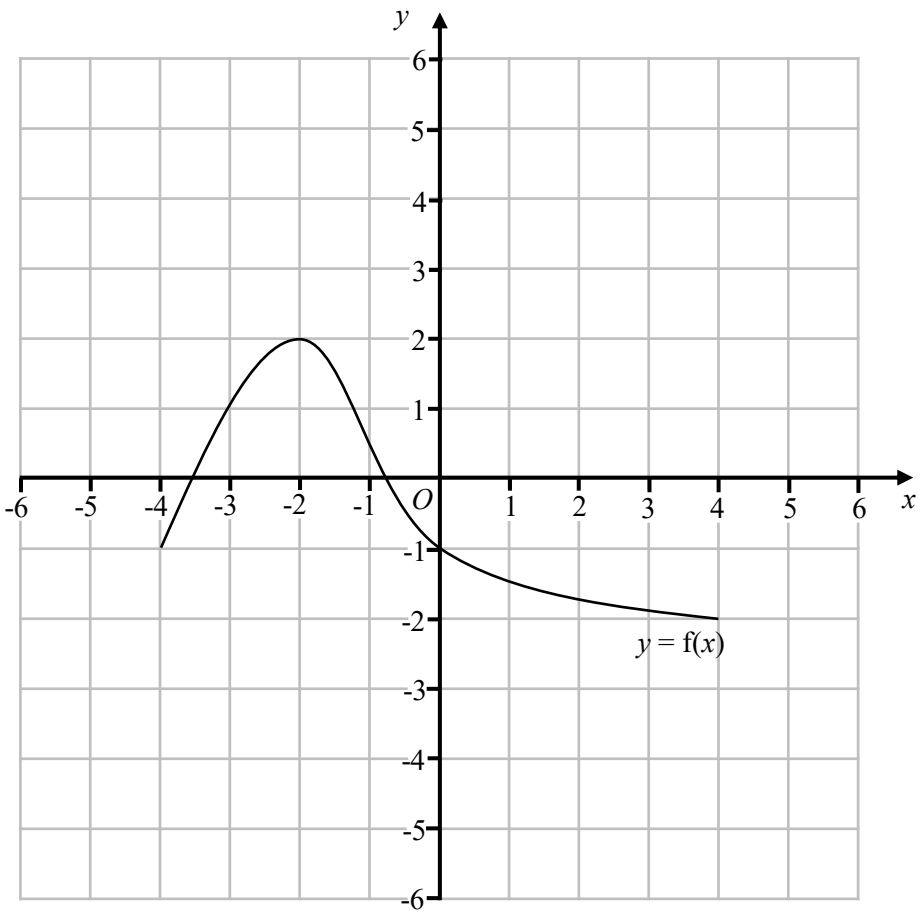


(a) Draw the graph of $y = -f(x)$ onto the first grid. **(1)**

(b) Draw the graph of $y = g(-x)$ onto the second grid. **(1)**

(Total for Question 3 is 2 marks)

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



(a) Draw the graph of $y = f(x + 1) + 2$ onto the grid above. **(2)**

Point $A(-2, 2)$ is on the graph $y = f(x)$

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

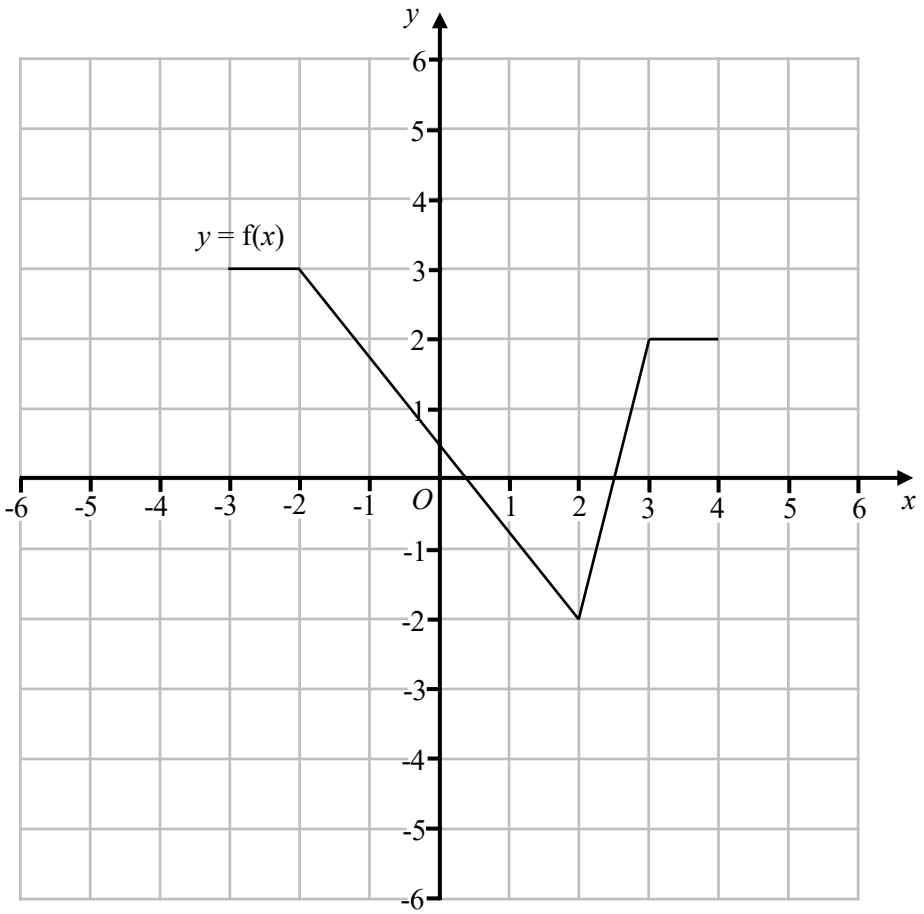
(b) Write down the coordinates of point B.

(..... , ...)

(1)

(Total for Question 4 is 3 marks)

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



(a) Draw the graph of $y = f(-x) - 2$ onto the grid above. **(2)**

Point $A(4, 2)$ is on the graph $y = f(x)$

When the graph of $y = f(x)$ is transformed to the graph with equation $y = -f(x + 7)$ the point A is mapped to point B.

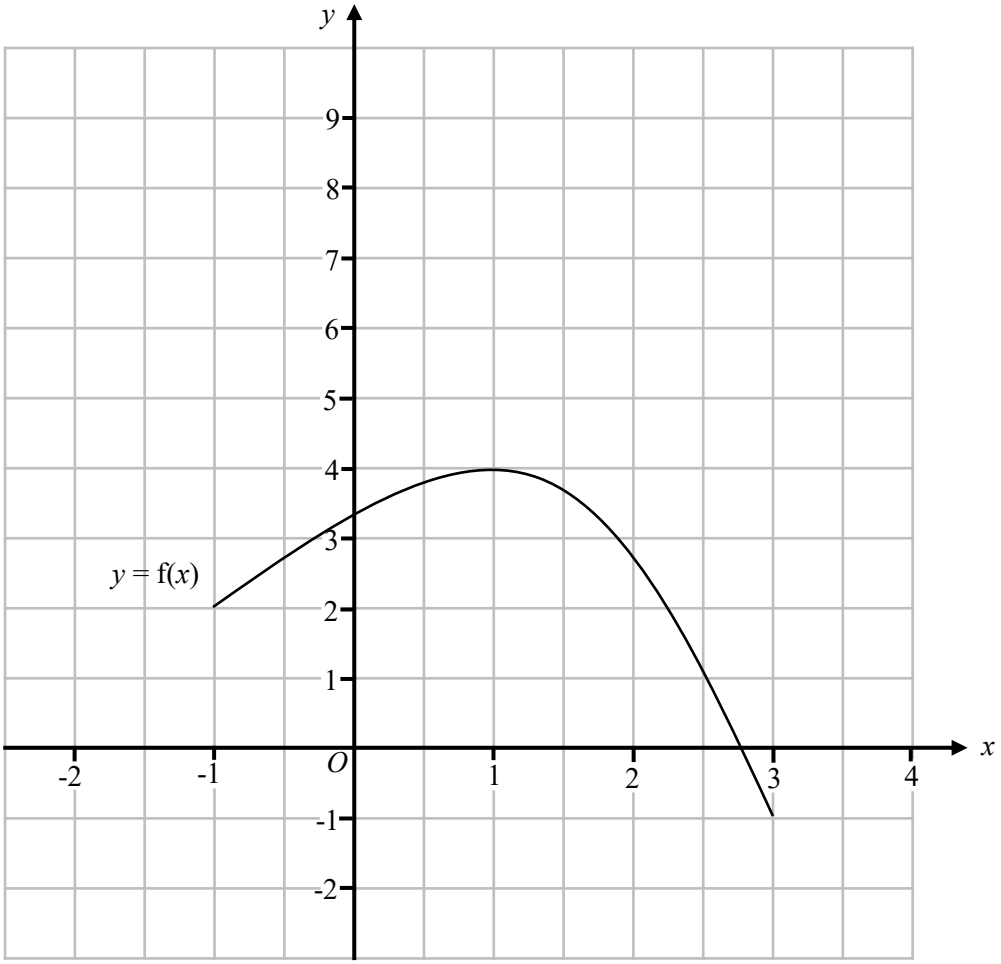
(b) Write down the coordinates of point B.

(..... , ...)

(2)

(Total for Question 5 is 4 marks)

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



(a) Draw the graph of $y = f(x - 1) + 3$ onto the grid above. **(2)**

Point $A(3, -1)$ is on the graph $y = f(x)$

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

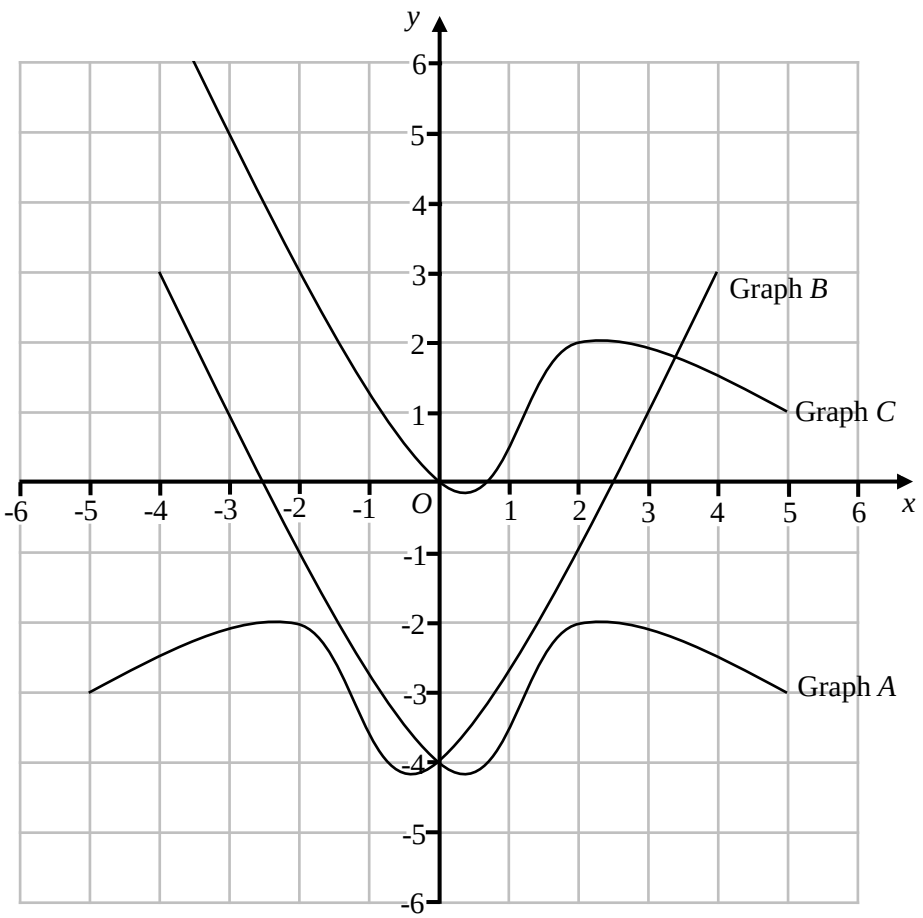
(b) Write down the coordinates of point B.

(..... , ...)

(2)

(Total for Question 6 is 4 marks)

7 The grid below shows the graphs A, B and C.



On the grid above

graph A has been reflected to give graph B.
graph A has been translated to give graph C.

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

(a) Write down an equation of graph B.

.....

(1)

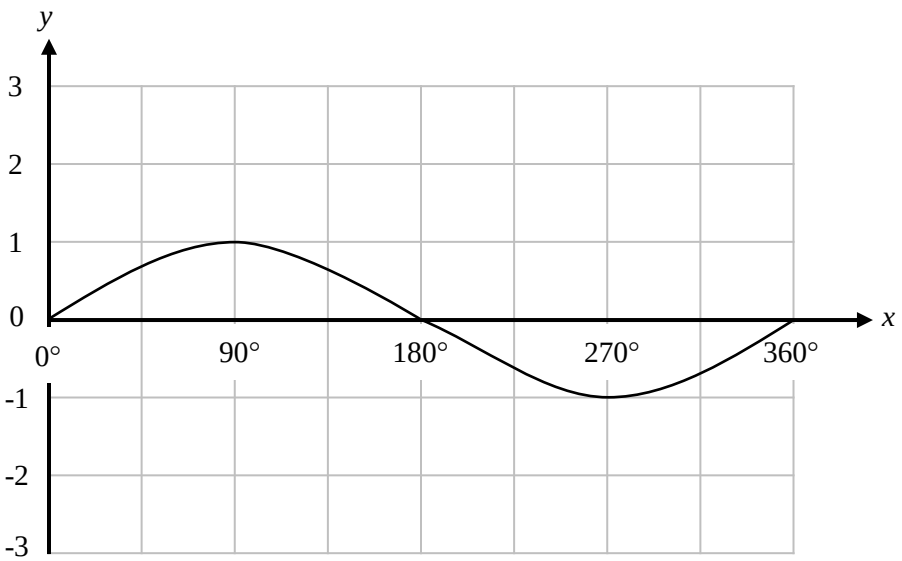
(b) Write down an equation of graph C.

.....

(2)

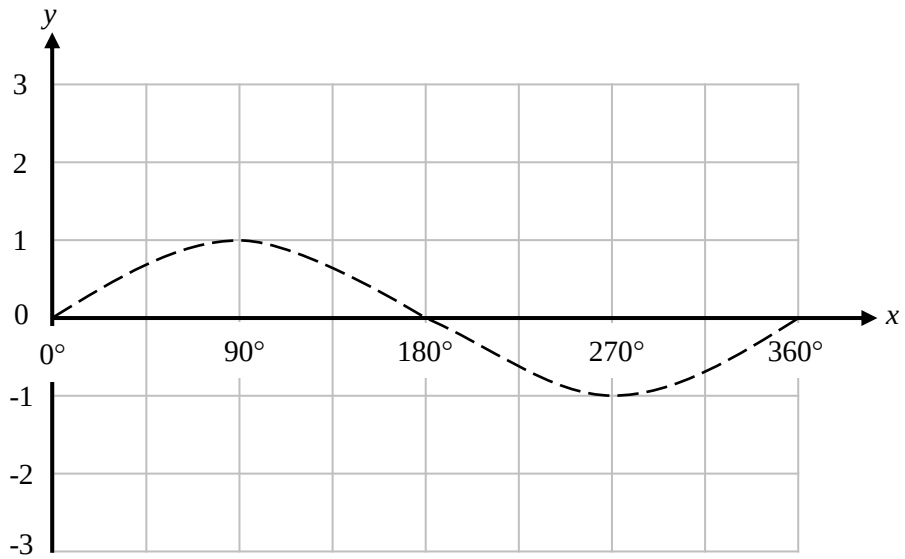
(Total for Question 7 is 3 marks)

8 Here is the graph of $y = \sin x°$ for $0° \leqslant x \leqslant 360°$



In parts (a), (b) and (c) the graph of $y = \sin x°$ is shown as a dashed line.

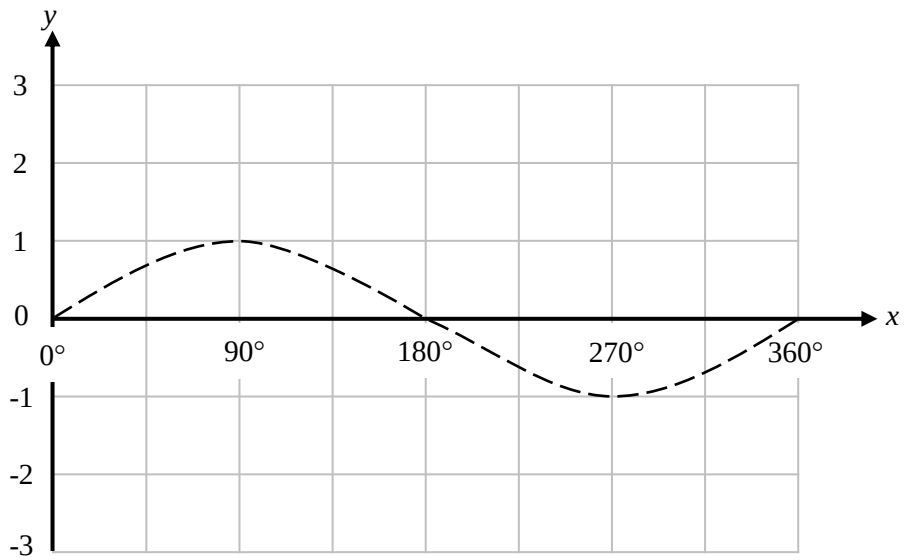
(a) On the grid below sketch the graph of $y = \sin x° - 2$ for $0° \leqslant x \leqslant 360°$



(1)

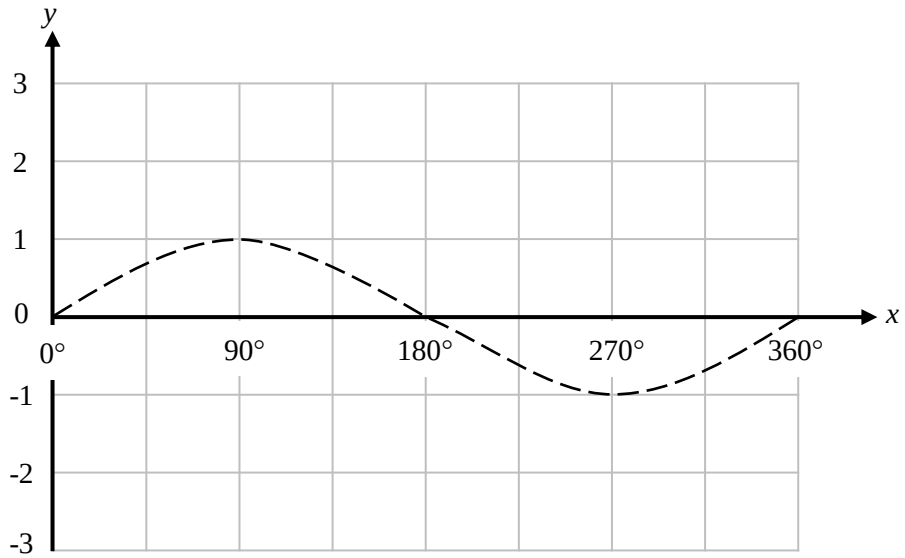
Solutions

(b) On the grid below sketch the graph of $y = \sin(x + 90°)$ for $0° \leqslant x \leqslant 360°$



(1)

(c) On the grid below sketch the graph of $y = -\sin x°$ for $0° \leqslant x \leqslant 360°$



(1)

(Total for Question 8 is 3 marks)

Solutions

9 The graph of $y = 3x^2 + 2x - 5$ is reflected in the x-axis.
The reflected graph has equation $y = f(x)$

Work out $f(x)$.

Give your answer in the form $ax^2 + bx + c$ where a, b and c are integers.

.....

(Total for Question 9 is 2 marks)

10 The graph of $y = x^2 + 5$ is translated 3 units to the left.
The translated graph has equation $y = f(x)$

Work out $f(x)$.

Give your answer in the form $x^2 + ax + b$ where a and b are integers.

.....

(Total for Question 10 is 3 marks)

11 The graph of $y = 2x^2 - 5x + 3$ is reflected in the y-axis.
The reflected graph has equation $y = f(x)$

Work out $f(x)$.

Give your answer in the form $ax^2 + bx + c$ where a, b and c are integers.

.....

(Total for Question 11 is 2 marks)

12 The graph of $y = x^3 - 5$ is translated 2 units to the right.
The translated graph has equation $y = f(x)$

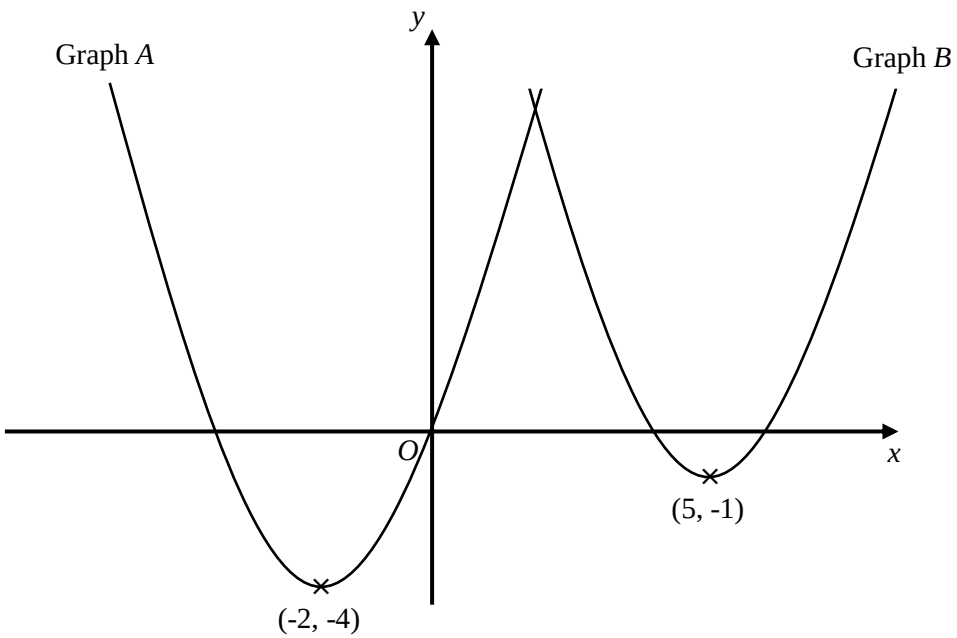
Work out $f(x)$.

Give your answer in the form $x^3 + ax^2 + bx + c$ where a, b and c are integers.

.....

(Total for Question 12 is 4 marks)

13 Here are sketches of two graphs.



Graph *A* has equation $y = x^2 + 4x$

Graph *A* is translated to give graph *B* so that the turning point (-2, -4) on graph *A* is mapped to the point (5, -1) on graph *B*.

Work out an equation for graph *B*.

Give your answer in the form $x^2 + ax + b$ where *a* and *b* are integers.

.....

(Total for Question 13 is 4 marks)

14 The graph of $y = 10 - 2x^2$ is translated 3 units to the right and 1 unit up.
The translated graph has equation $y = f(x)$

Work out $f(x)$.

Give your answer in the form $x^2 + ax + b$ where a and b are integers.

.....

(Total for Question 14 is 4 marks)