



SCAN ME

Transformations of Graphs



SCAN ME

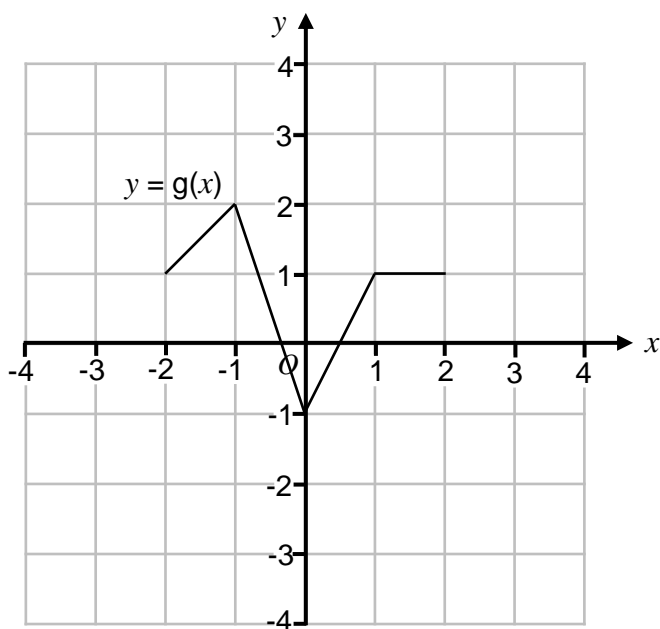
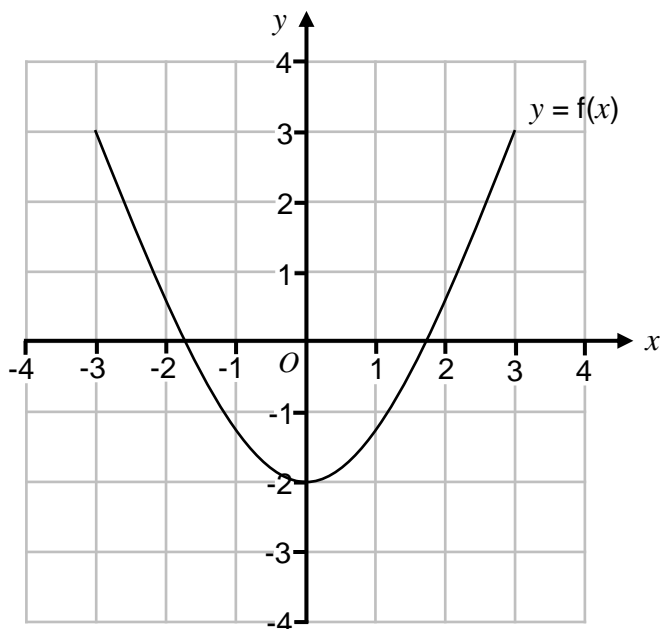


REVISE THIS TOPIC



CHECK YOUR ANSWERS

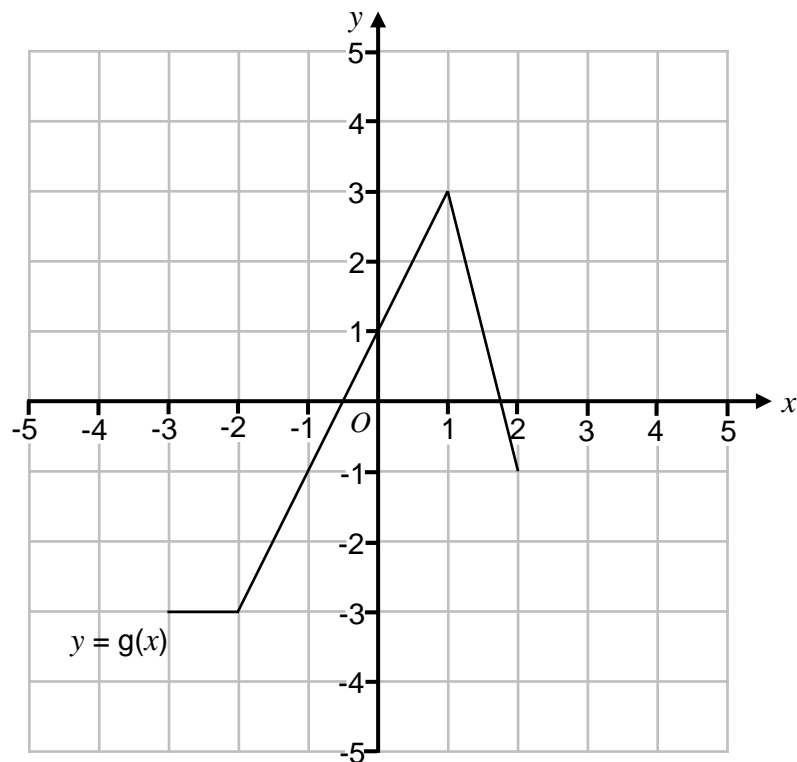
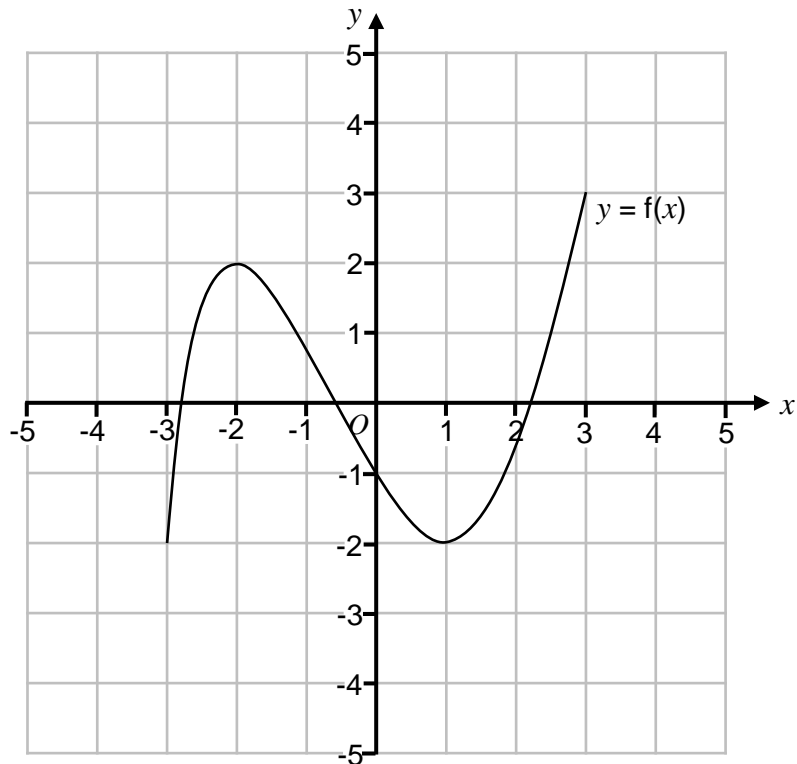
1 The graphs of $y = f(x)$ and $y = g(x)$ are shown on the grids below.



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

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

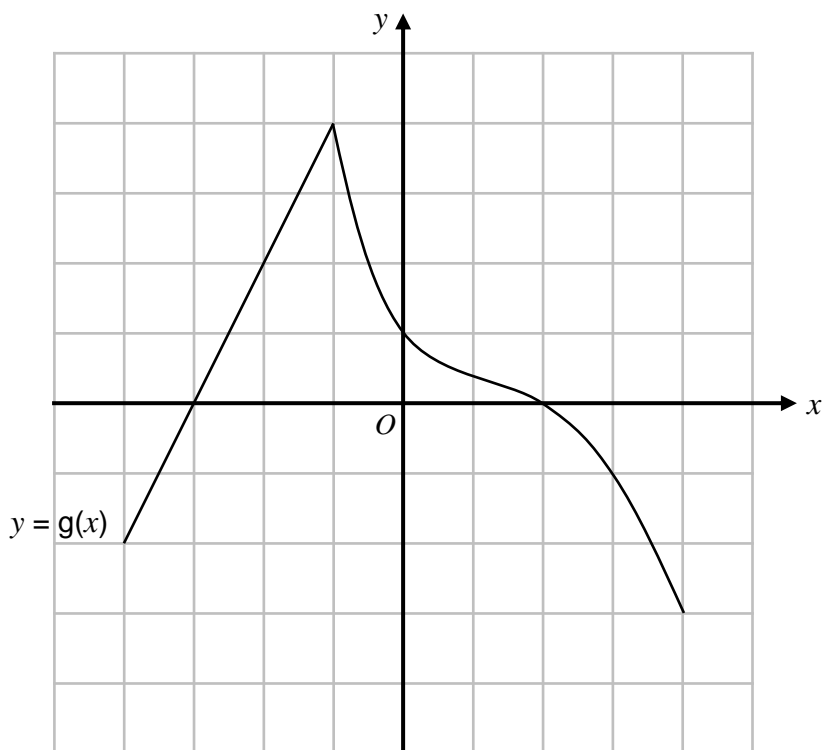
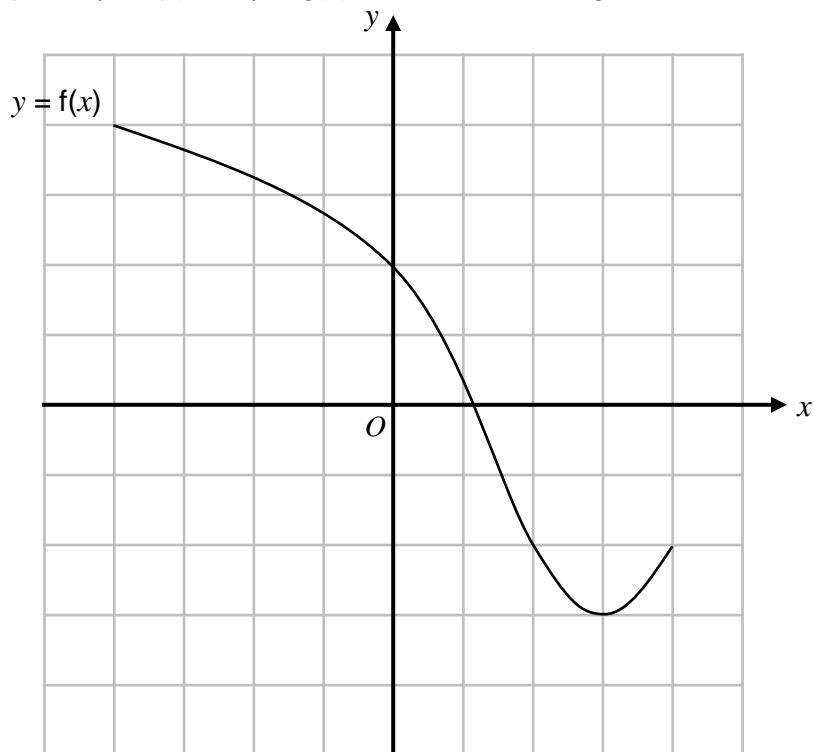
2 The graphs of $y = f(x)$ and $y = g(x)$ are shown on the grids below.



- 2 (a) Draw the graph of $y = f(x + 1)$ onto the first grid. [1 mark]
- 2 (b) Draw the graph of $y = g(x - 2)$ onto the second grid. [1 mark]



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



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

[1 mark]

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

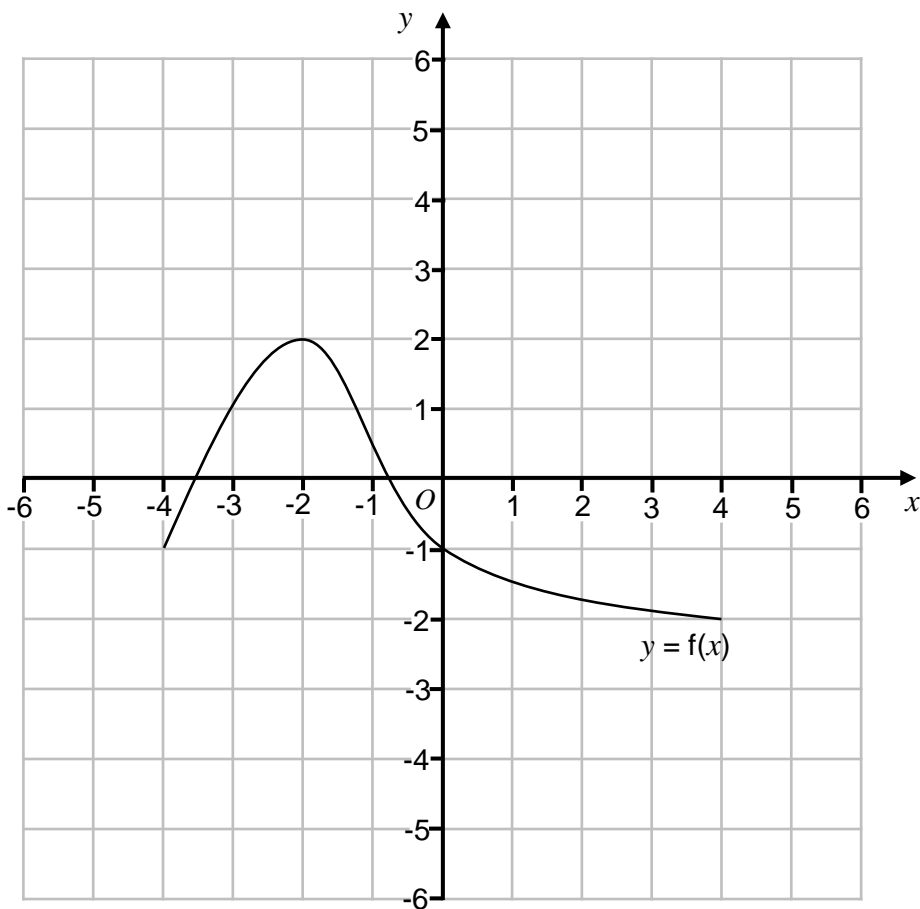
[1 mark]

$\frac{1}{4}$

Turn over ►



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



4 (a) Draw the graph of $y = f(x + 1) + 2$ onto the grid above. [2 marks]

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

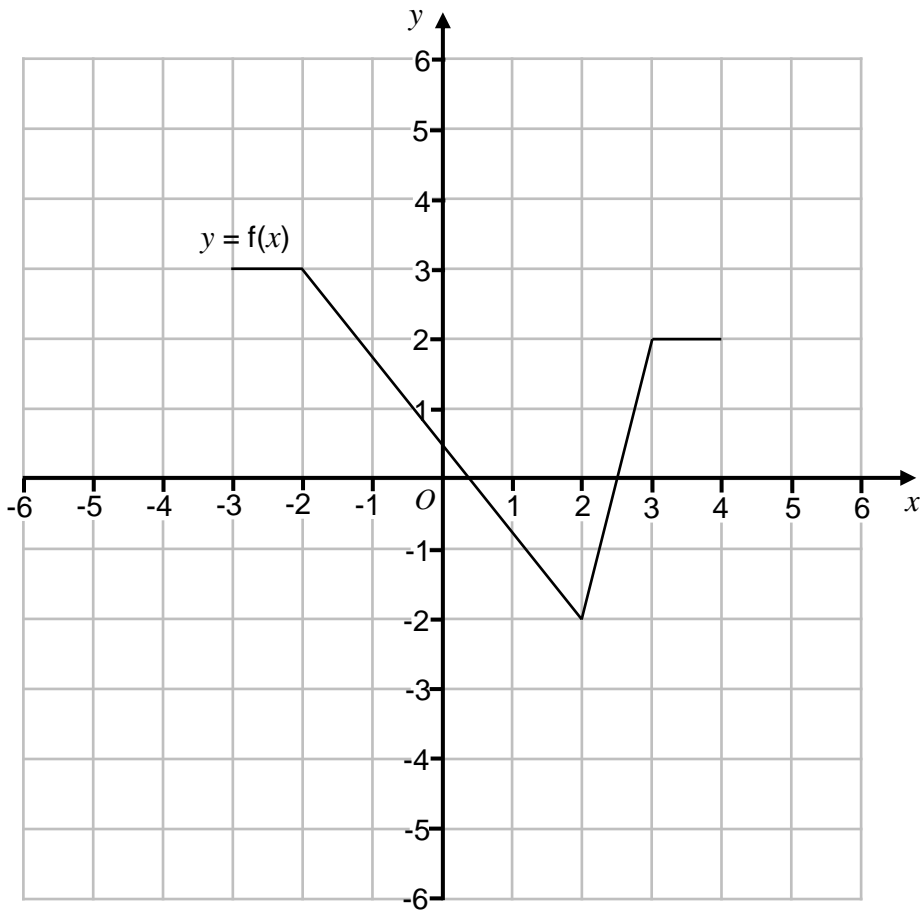
When the graph of $y = f(x)$ is transformed to the graph with equation $y = f(-x)$ the point A is mapped to point B .

Write down the coordinates of point B . [1 mark]

Answer (_____ , _____)



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



5 (a) Draw the graph of $y = f(-x) - 2$ onto the grid above. [2 marks]

5 (b) 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 .

Write down the coordinates of point B . [2 marks]

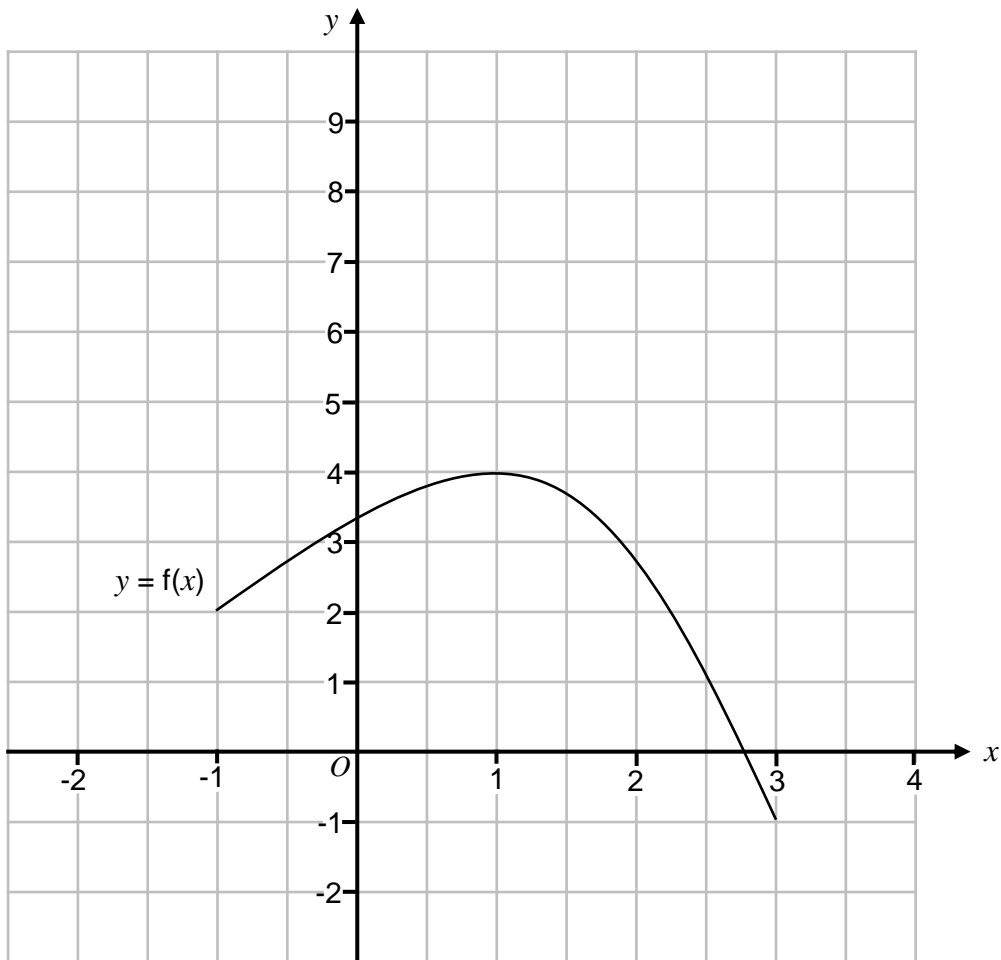
Answer (_____ , _____)

$\frac{7}{7}$

Turn over ►



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



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

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

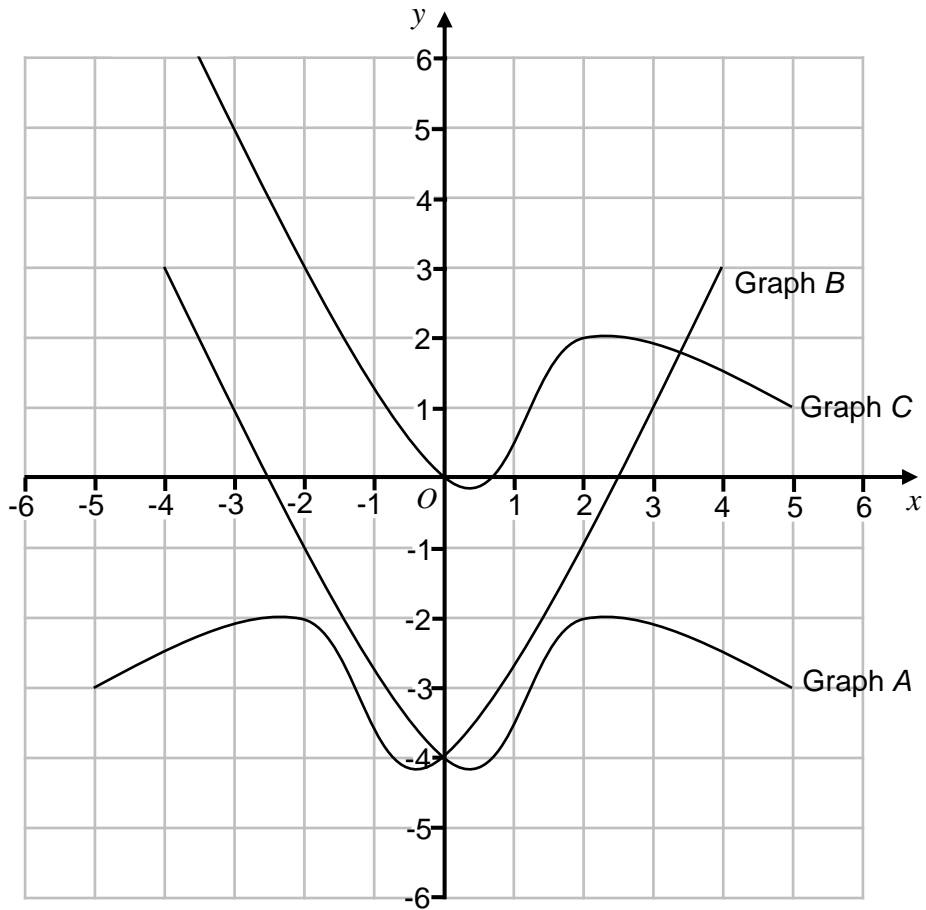
When the graph of $y = f(x)$ is transformed to the graph with equation $y = -f(-x)$ the point A is mapped to point B .

Write down the coordinates of point B . [2 marks]

Answer (_____ , _____)



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 $y = f(x)$

7 (a) Write down an equation of graph B. [1 mark]

Answer _____

7 (b) Write down an equation of graph C. [2 marks]

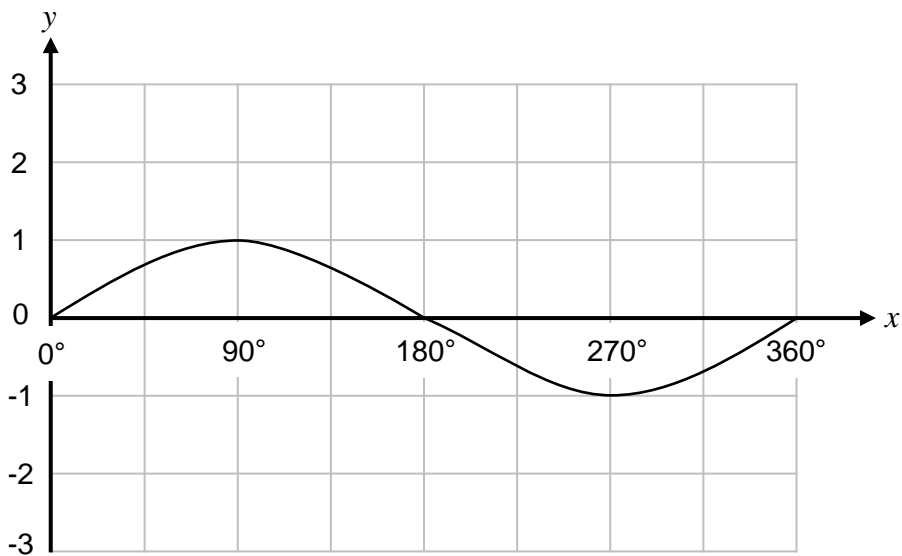
Answer _____

$\frac{7}{7}$

Turn over ►



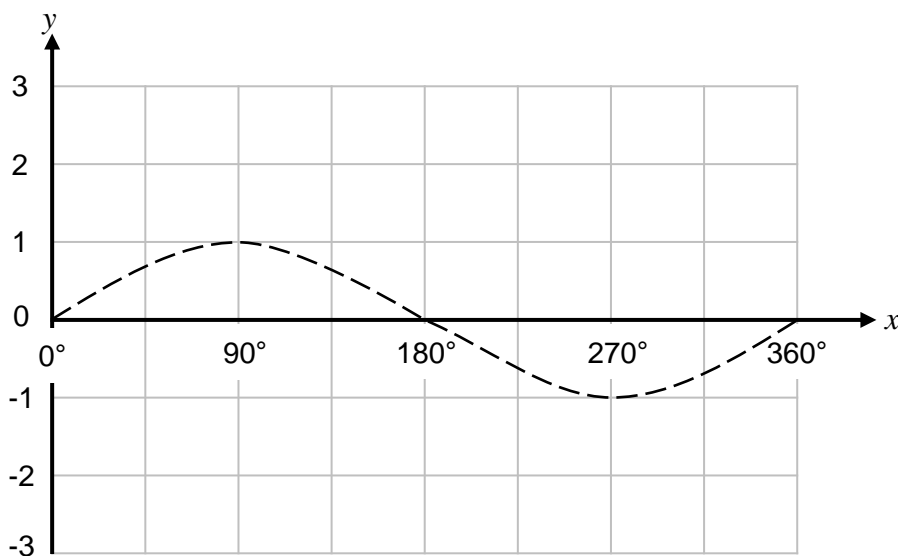
8 Here is the graph of $y = \sin x$ for $0^\circ \leq x \leq 360^\circ$



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

8 (a) On the grid below sketch the graph of $y = \sin x - 2$ for $0^\circ \leq x \leq 360^\circ$

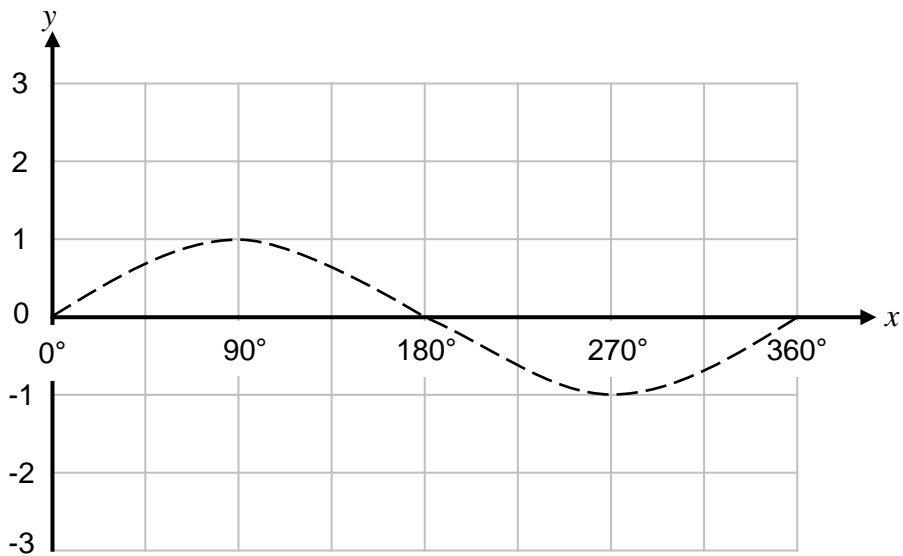
[1 mark]





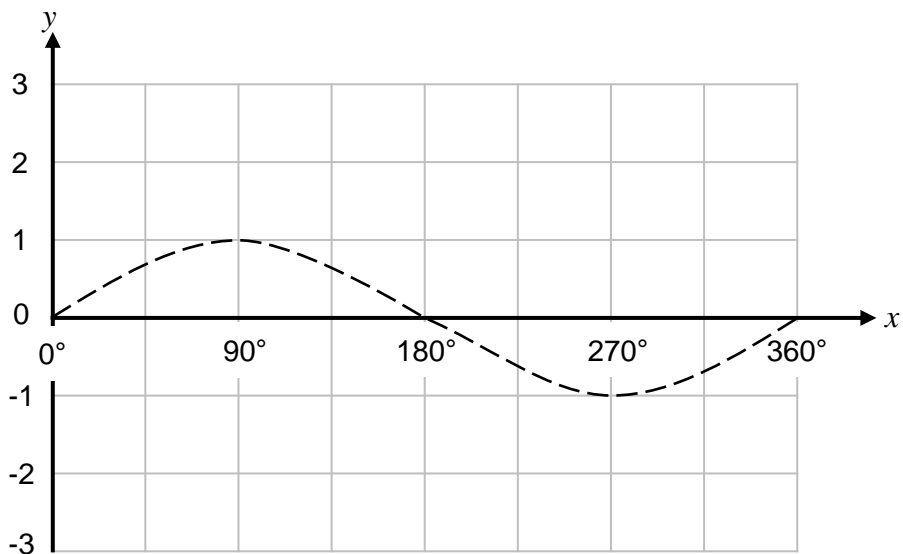
8 (b) On the grid below sketch the graph of $y = \sin(x + 90^\circ)$ for $0^\circ \leq x \leq 360^\circ$

[1 mark]



8 (c) On the grid below sketch the graph of $y = -\sin x$ for $0^\circ \leq x \leq 360^\circ$

[1 mark]



Turn over ►





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.

[2 marks]

Answer _____

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. [3 marks]

Answer _____





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.

[2 marks]

Answer _____

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.

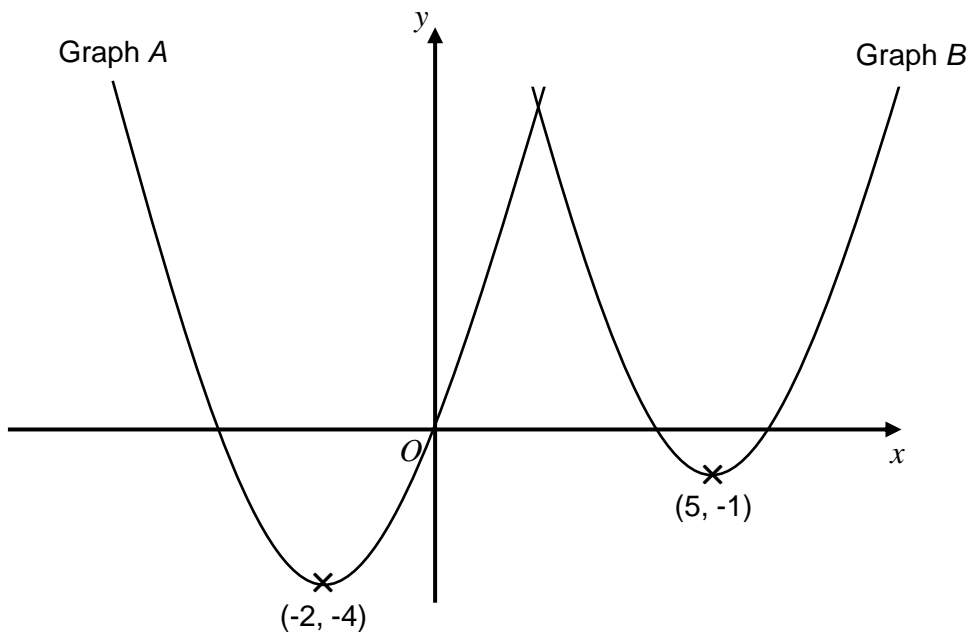
[4 marks]

Answer _____

Turn over ►



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. **[4 marks]**

Answer _____





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. **[4 marks]**

Answer _____

