

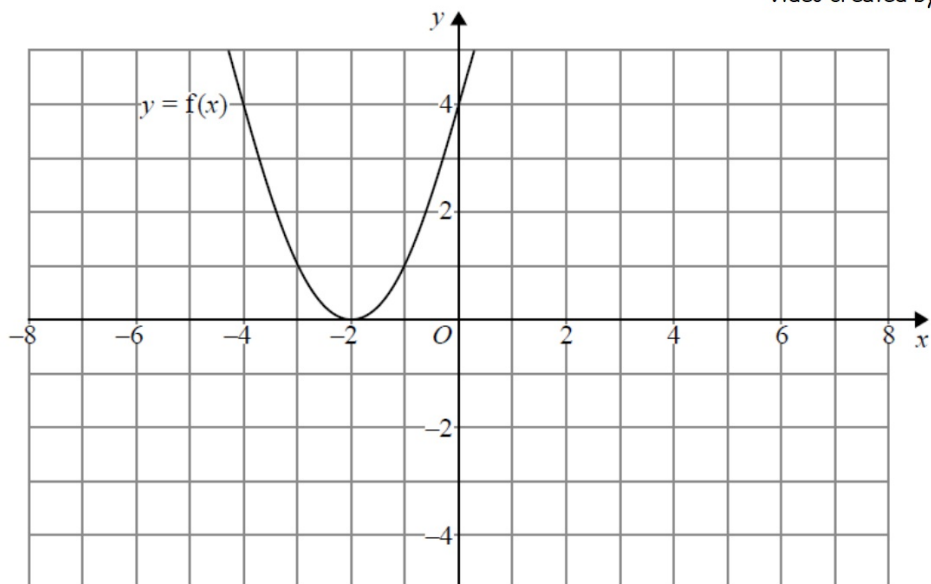
A78 (H) Transforming Function Graphs

OCR

Edexcel

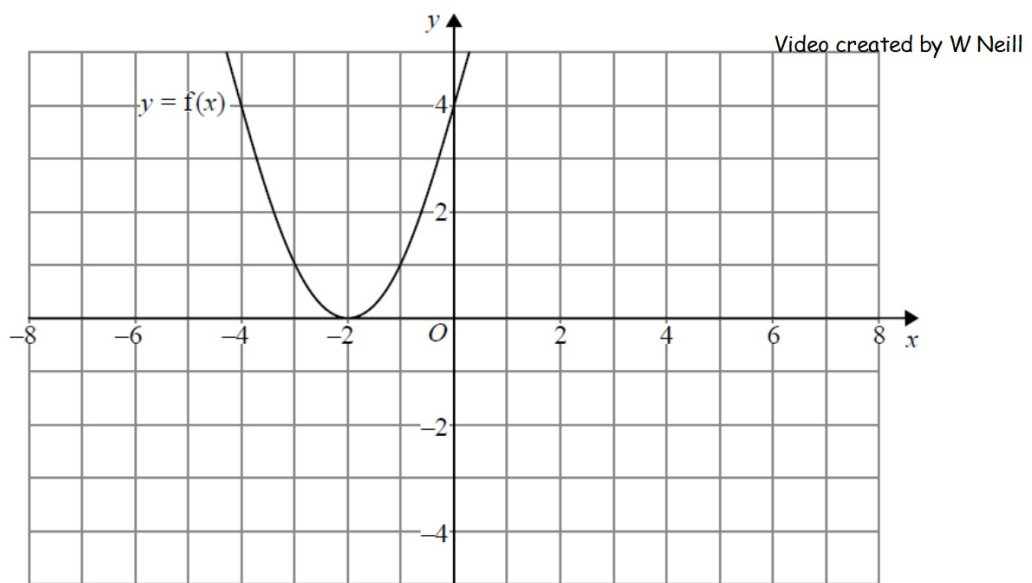
19 The graph of $y = f(x)$ is shown on both grids below.

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

(1)



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

(1)

(Total for Question 19 is 2 marks)

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- 16** 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 .

(.....,))

(Total for Question 16 is 2 marks)

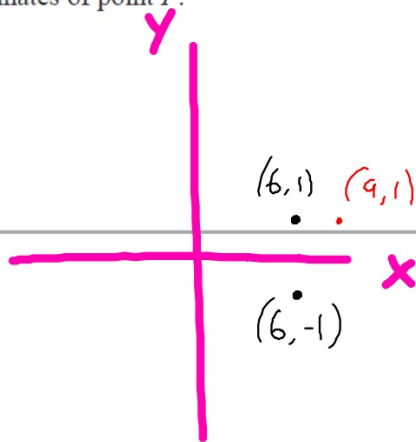
- 16 The graph of $y = f(x)$ is transformed to give the graph of $y = -f(x+3)$
 The point A on the graph of $y = f(x)$ is mapped to the point P on the graph of $y = -f(x+3)$

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

$f(x+3)$... move left 3 places
 $-f(x)$... Reflect in x-axis

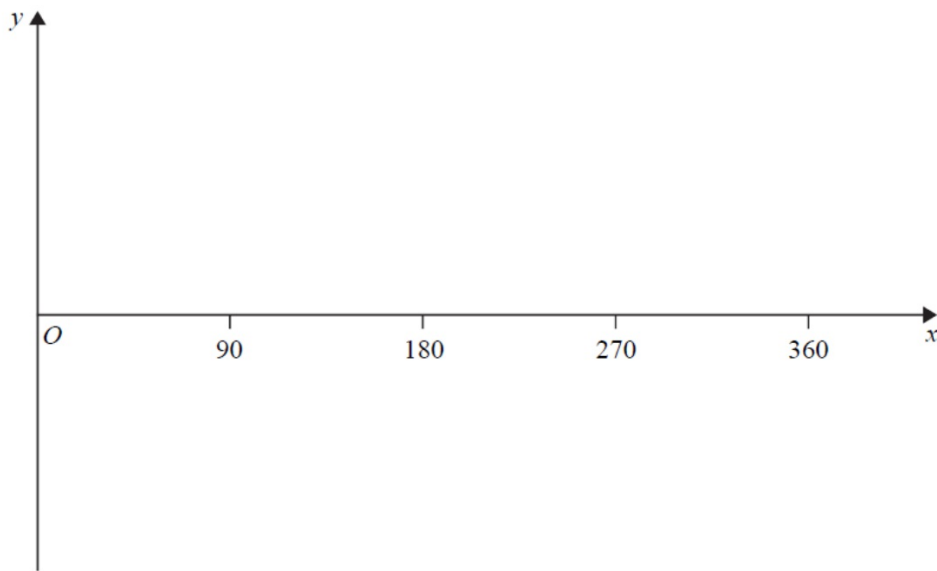
(6 , -1)

(Total for Question 16 is 2 marks)



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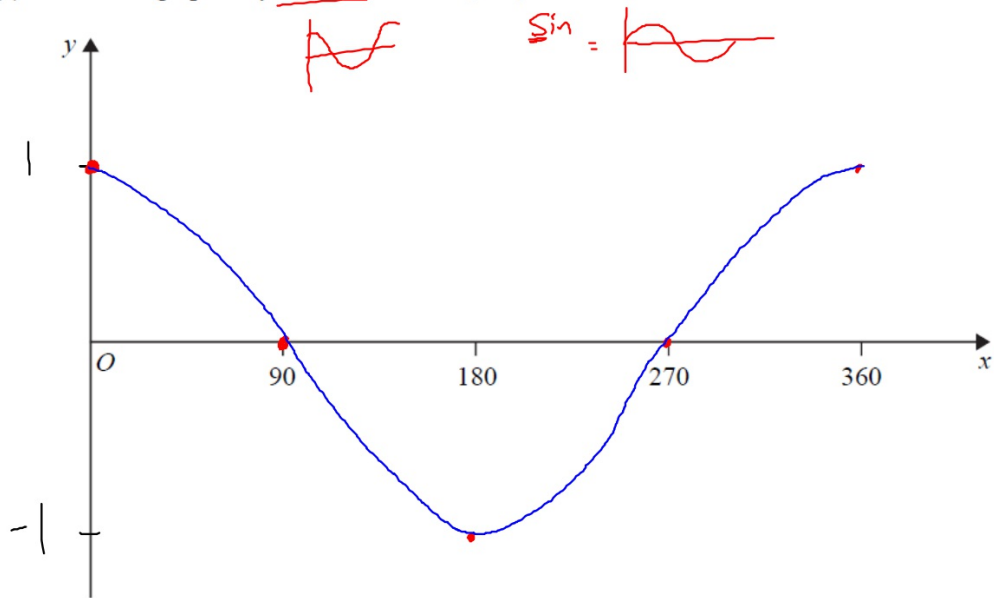
19 (a) Sketch the graph of $y = \cos x^\circ$ for $0 \leq x \leq 360$



(2)

Video created by W Neill

19 (a) Sketch the graph of $y = \cos x^\circ$ for $0 \leq x \leq 360$

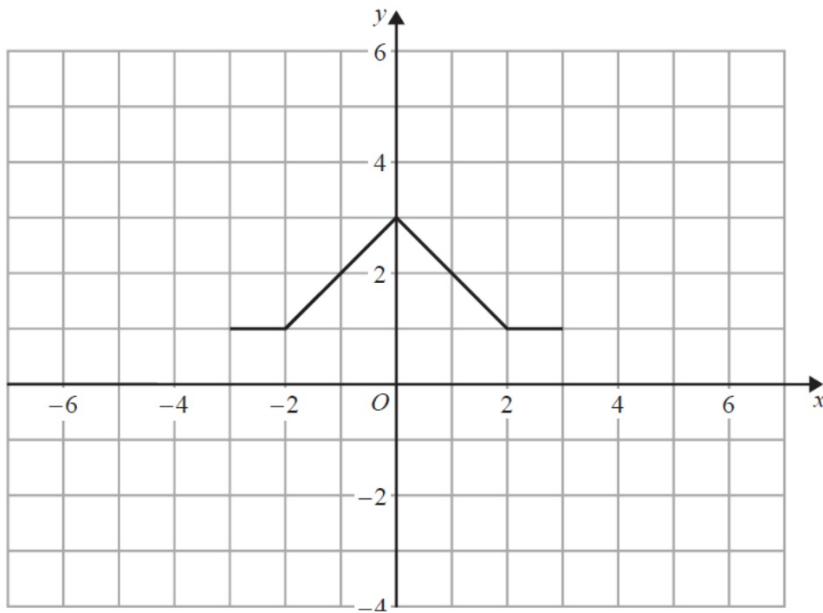


(2)

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

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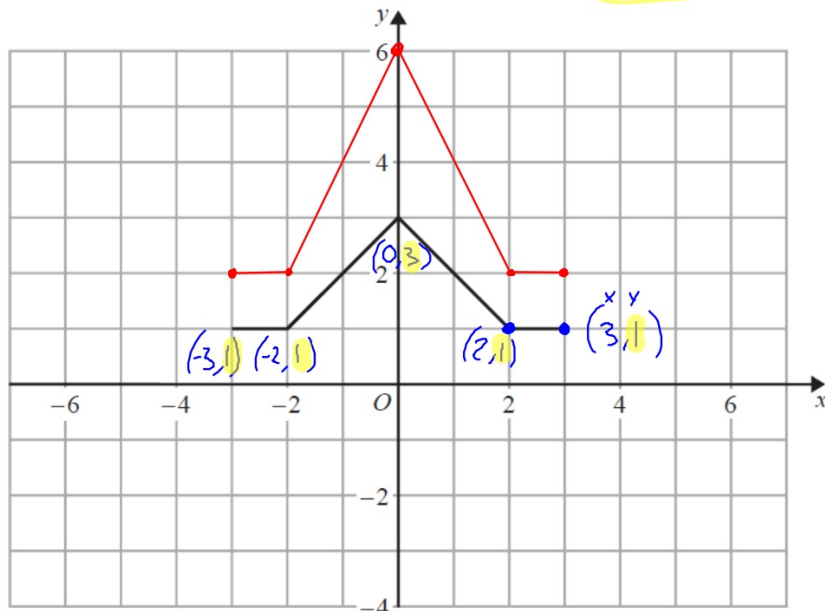
(i) On this grid, draw the graph of $y = 2f(x)$



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

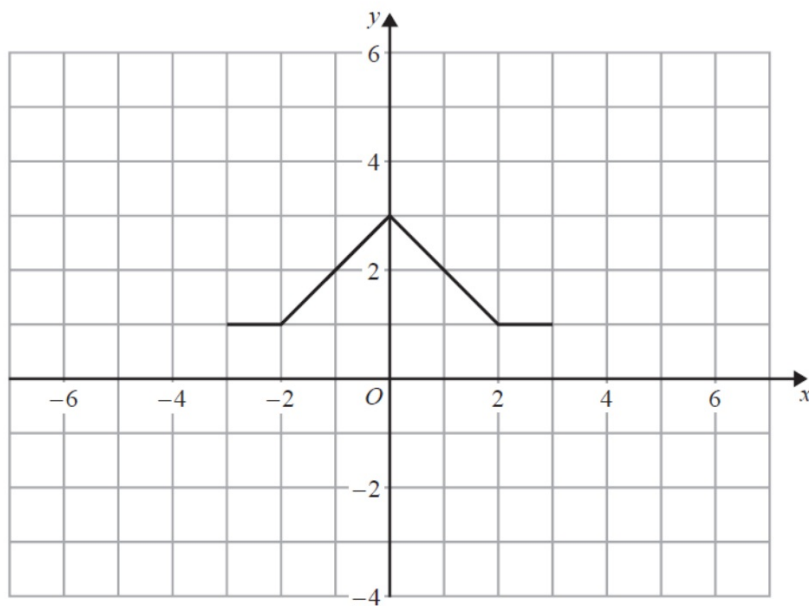
(i) On this grid, draw the graph of $y = 2f(x)$

→ mult y co-ordinate by 2



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

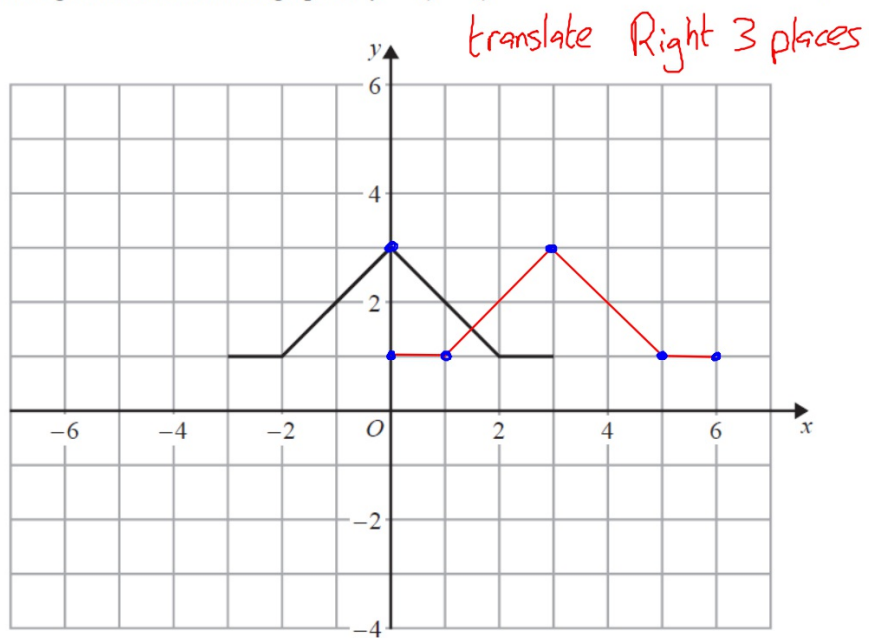
Video created by W Neill



(2)

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

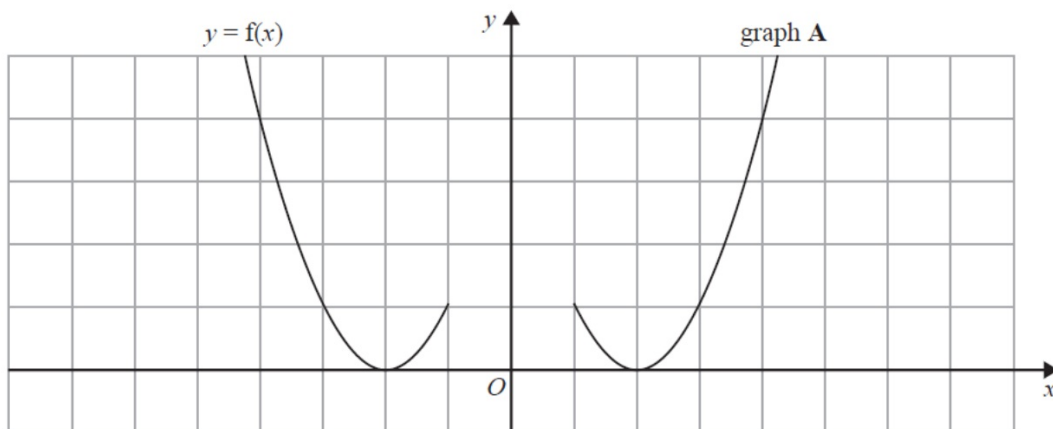
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(2)

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

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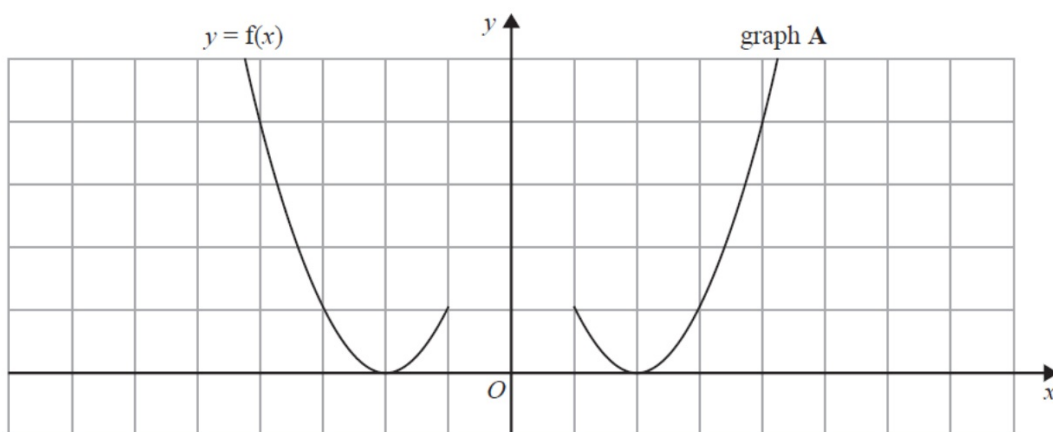
Graph A is a reflection of the graph of $y = f(x)$.

(a) Write down the equation of graph A.

.....
(1)

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

Video created by W Neill



Graph A is a reflection of the graph of $y = f(x)$.

(a) Write down the equation of graph A.

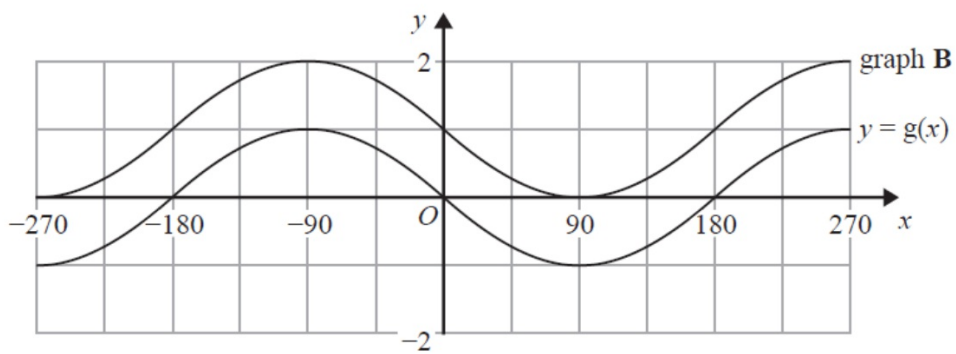
$$\frac{U}{n} \quad y = -f(x)$$

$$U \mid U \quad y = f(-x)$$

(1)

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

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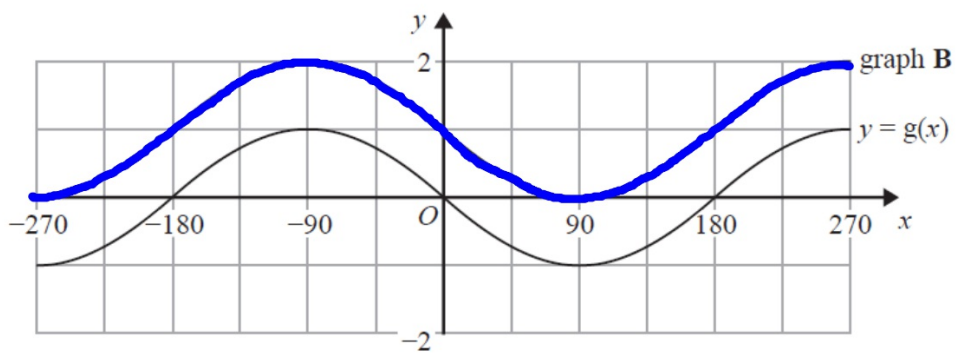
Graph **B** is a translation of $y = g(x)$.

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

.....
(1)

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

Video created by W Neill



Graph **B** is a translation of $y = g(x)$.

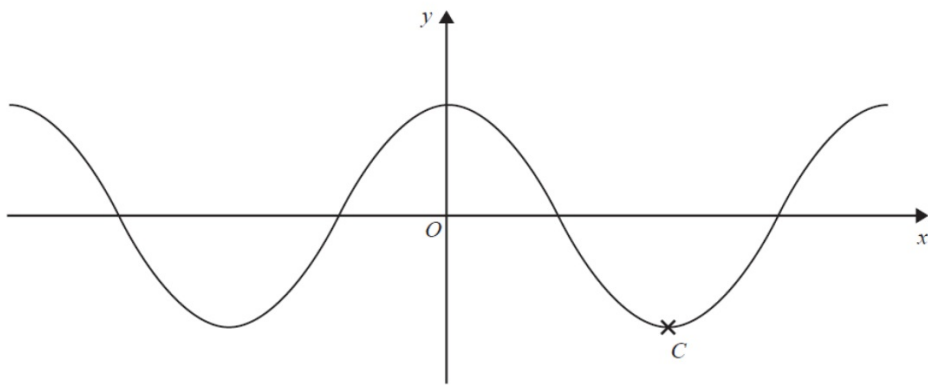
(b) Write down the equation of graph **B**.

$$y = g(x) + 1$$

.....
(1)

The graph of $y = \cos x^\circ$ is shown.

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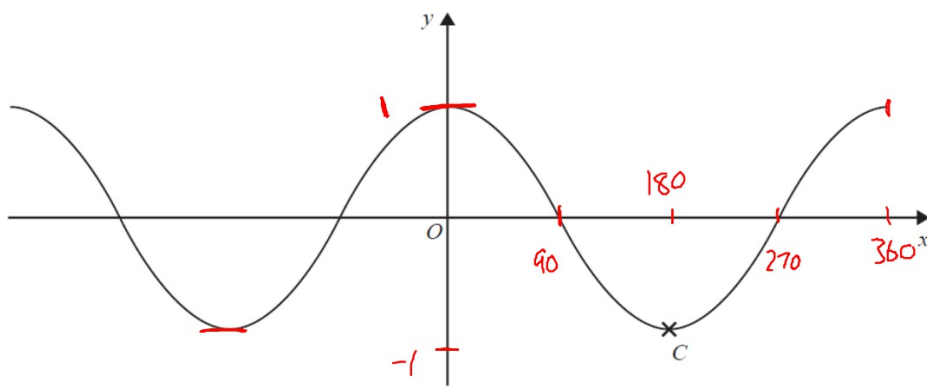
(c) Write down the coordinates of the point marked C.

(.....,)
(1)

(Total for Question 22 is 3 marks)

The graph of $y = \cos x^\circ$ is shown.

Video created by W Neill

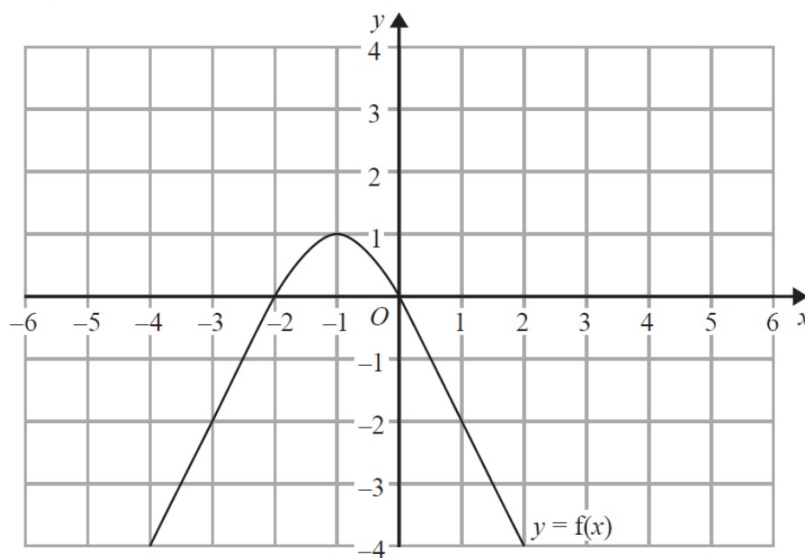


(c) Write down the coordinates of the point marked C .

(180, -1)
(1)

(Total for Question 22 is 3 marks)

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



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

(1)

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

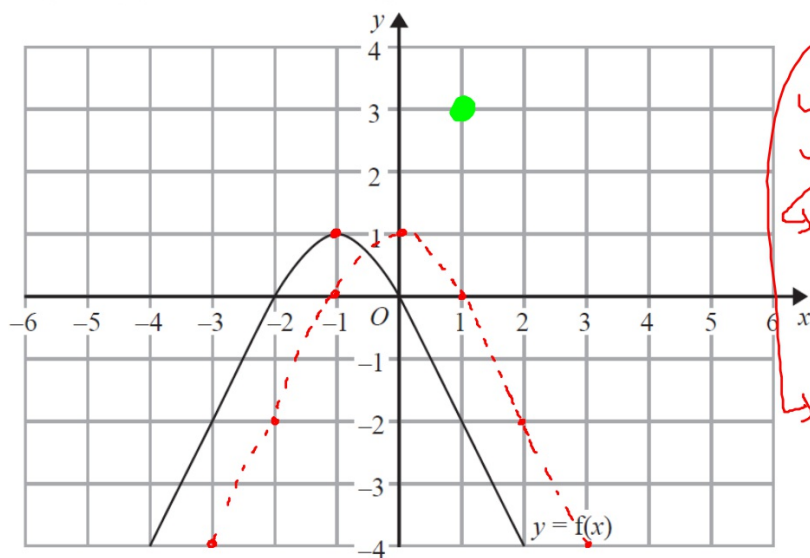
(b) Write down the coordinates of the turning point of the graph of $y = f(-x) + 2$

(.....,))

(1)

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



$y = f(-x) + 2$
↳ Reflection in y -axis
↳ Moved up 2 places

(a) On the grid, sketch the graph of $y = f(x - 1)$ Right one place

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

(1 , 3)
(1)

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The equation of circle **C** is $x^2 + y^2 = 16$

The circle **C** is translated by the vector $\begin{pmatrix} 3 \\ 0 \end{pmatrix}$ to give circle **B**.

(b) Draw a sketch of circle **B**.

Label with coordinates
the centre of circle **B**
and any points of intersection with the x -axis.

(3)

(Total for Question 20 is 4 marks)

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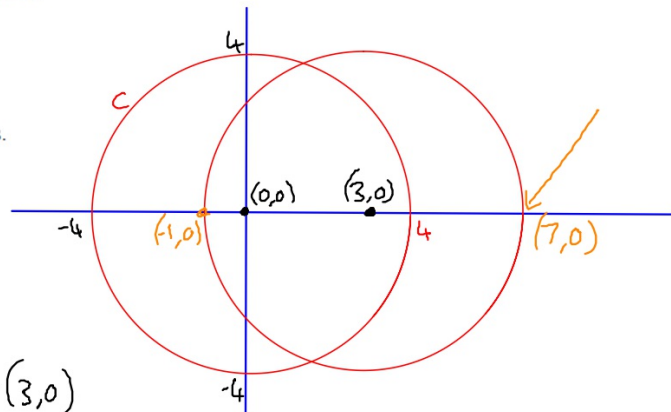
The equation of circle **C** is $x^2 + y^2 = 16$ $x^2 + y^2 = r^2$ $r^2 = 16$
 $r = 4$

The circle **C** is translated by the vector $\begin{pmatrix} 3 \\ 0 \end{pmatrix}$ to give circle **B**.

(b) Draw a sketch of circle **B**.

Label with coordinates
the centre of circle **B**
and any points of intersection with the x -axis.

$\begin{pmatrix} 3 \\ 0 \end{pmatrix}$... ⁺ Right / left
 $\begin{pmatrix} 0 \\ 0 \end{pmatrix}$... up / down



Centre = $(3,0)$
 $(-1,0)$
 $(7,0)$

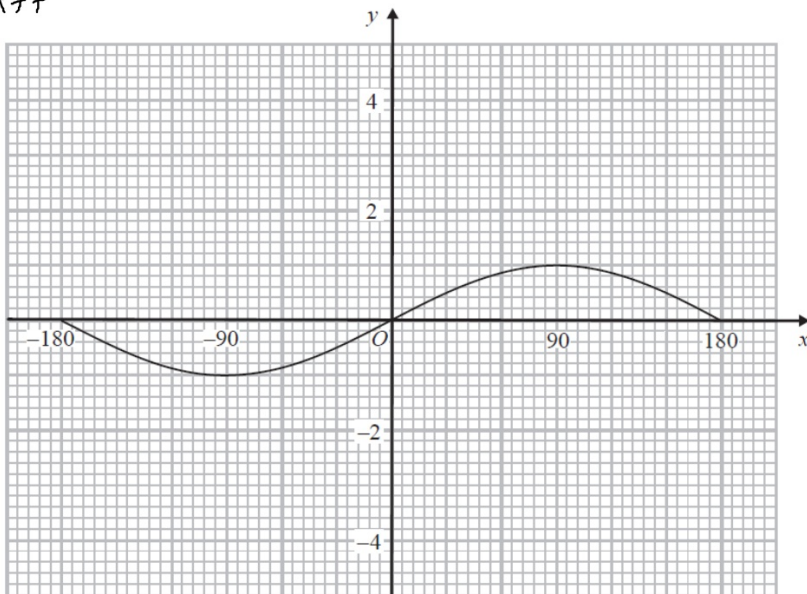
(3)

(Total for Question 20 is 4 marks)

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

A77

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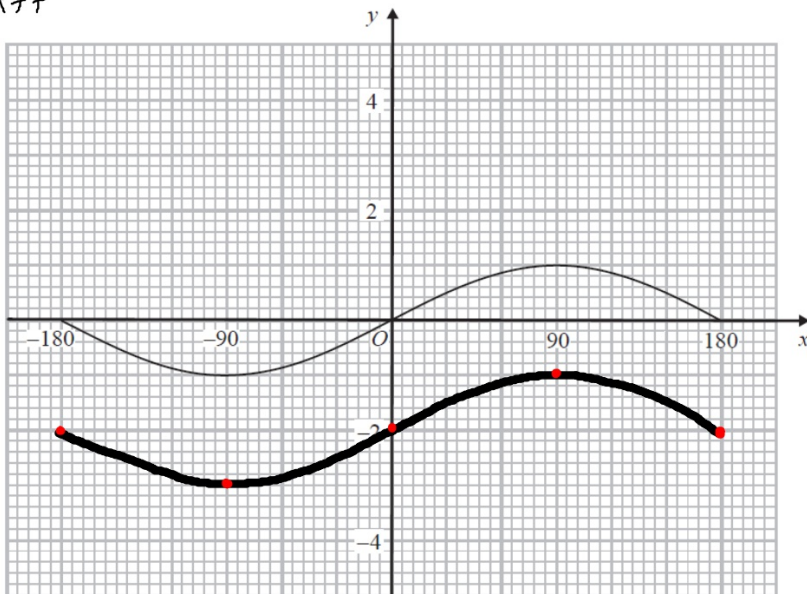


On the grid, sketch the graph of $y = \sin x^\circ - 2$ for $-180 \leq x \leq 180$

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

A77

Video created by W Neill



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

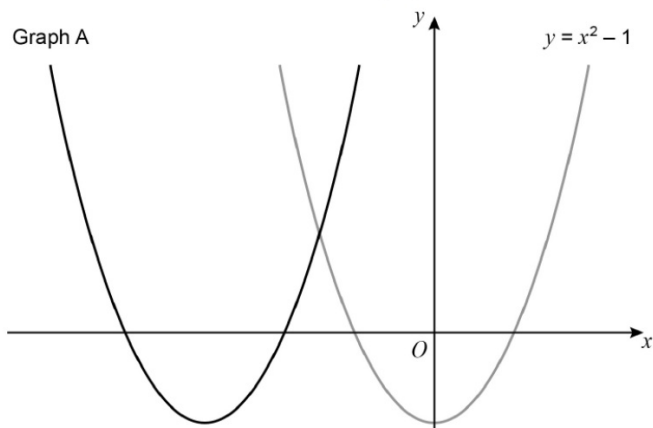
$\downarrow 2$

$\begin{pmatrix} 0 \\ -2 \end{pmatrix}$

AQA

29 Here are sketches of two graphs.

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The graph of $y = x^2 - 1$ is translated 3 units to the left to give graph A.

29 (a) The equation of graph A can be written in the form $y = x^2 + bx + c$

A78 Work out the values of b and c . **[3 marks]**

$b =$ _____

$c =$ _____

29 (b) The graph of $y = x^2 - 1$ is reflected in the x -axis to give graph B.

A78

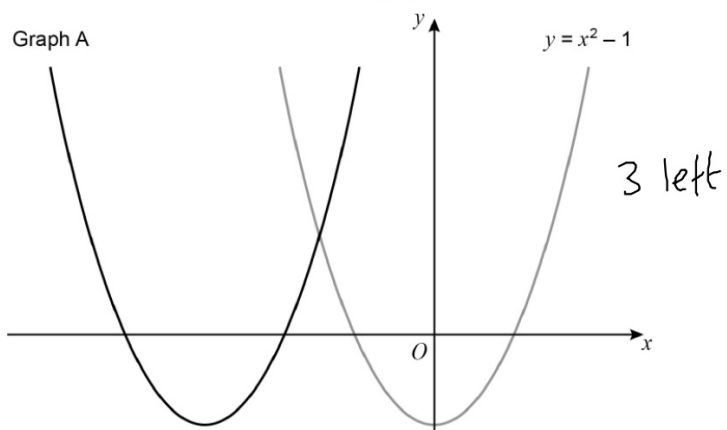
Work out the equation of graph B.

[1 mark]

Answer _____

29 Here are sketches of two graphs.

Video created by W Neill



The graph of $y = x^2 - 1$ is translated 3 units to the left to give graph A.

$$\begin{aligned}y &= x^2 - 1 \\y &= (x+3)^2 - 1 \\&= (x+3)(x+3) - 1 \\&= x^2 + 3x + 3x + 9 - 1 \\&= x^2 + 6x + 8\end{aligned}$$

29 (a) The equation of graph A can be written in the form $y = x^2 + bx + c$

A78 Work out the values of b and c . **[3 marks]**

$$\begin{aligned}b &= \underline{6} \\c &= \underline{8}\end{aligned}$$

29 (b) The graph of $y = x^2 - 1$ is reflected in the x -axis to give graph B.

A78

Work out the equation of graph B.

[1 mark]

$$y = -(x^2 - 1)$$

Answer $y = -x^2 + 1$ ✓

24

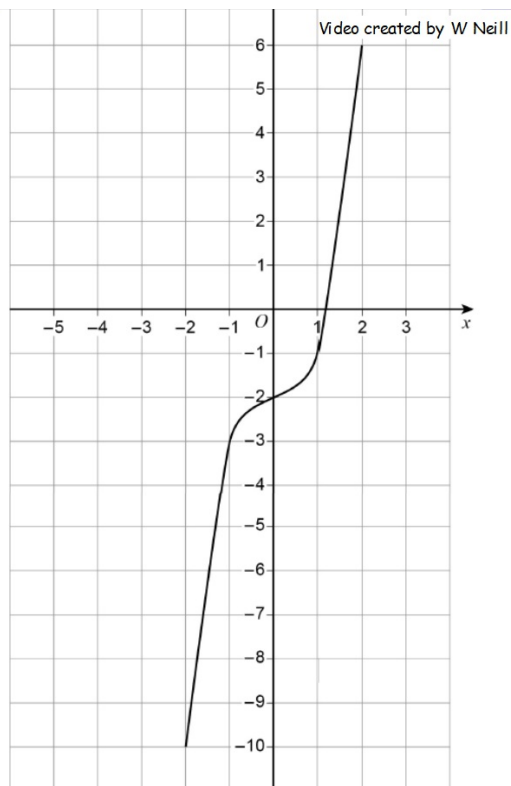
Here is a sketch of $y = f(x)$

The curve passes through the points

A78

$(-2, -10)$ $(-1, -3)$ $(0, -2)$ $(1, -1)$ $(2, 6)$

On the grid, sketch the curve $y = f(x + 2)$ [2 marks]



24

Here is a sketch of $y = f(x)$

The curve passes through the points

A78

$(-2, -10)$ $(-1, -3)$ $(0, -2)$ $(1, -1)$ $(2, 6)$

On the grid, sketch the curve $y = f(x + 2)$ [2 marks]

↓
move 2 left

