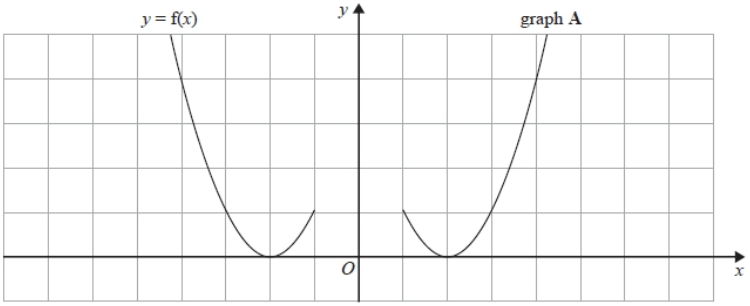
A258 Transformation of functions

Q1.

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



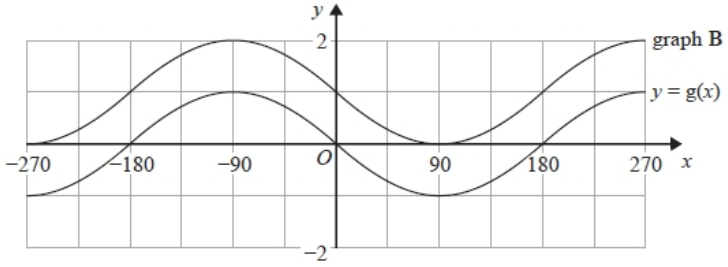
Graph **A** is a reflection of the graph of $y = f(x)$.

(a) Write down the equation of graph **A**.

.....

(1)

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



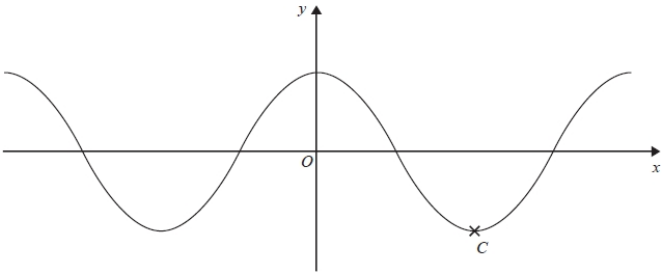
Graph **B** is a translation of $y = g(x)$.

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

.....

(1)

The graph of $y = \cos x°$ is shown.



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

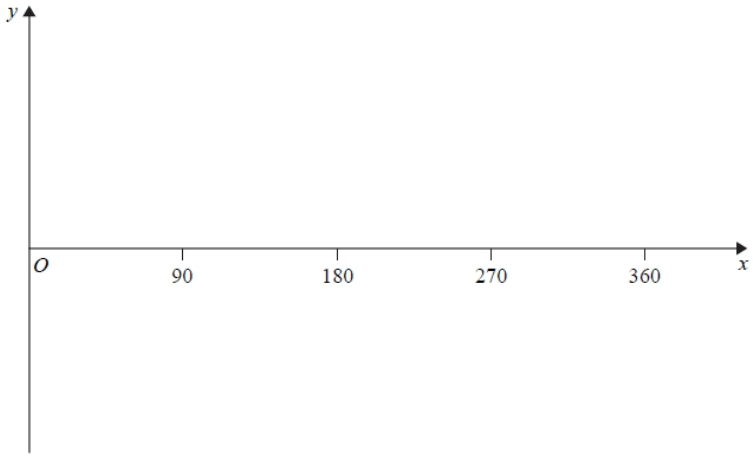
(..... , ...)

(1)

(Total for question = 3 marks)

Q2.

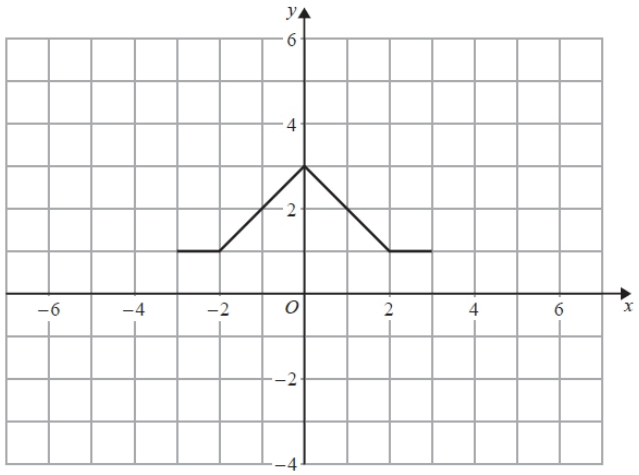
(a) Sketch the graph of $y = \cos x^{\circ}$ for $0 \leqslant x \leqslant 360$



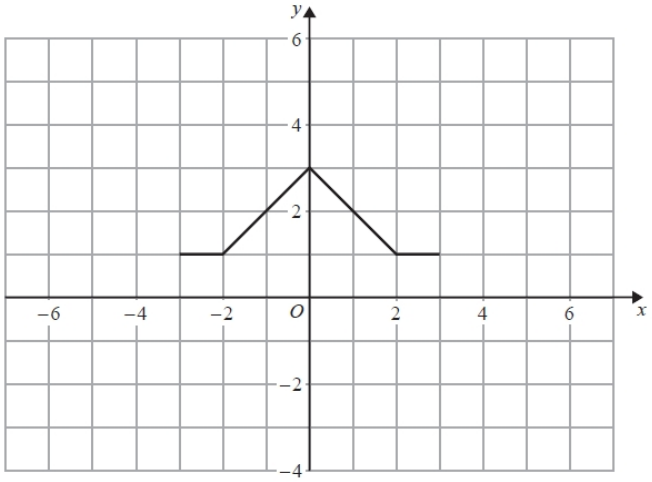
(2)

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

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



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

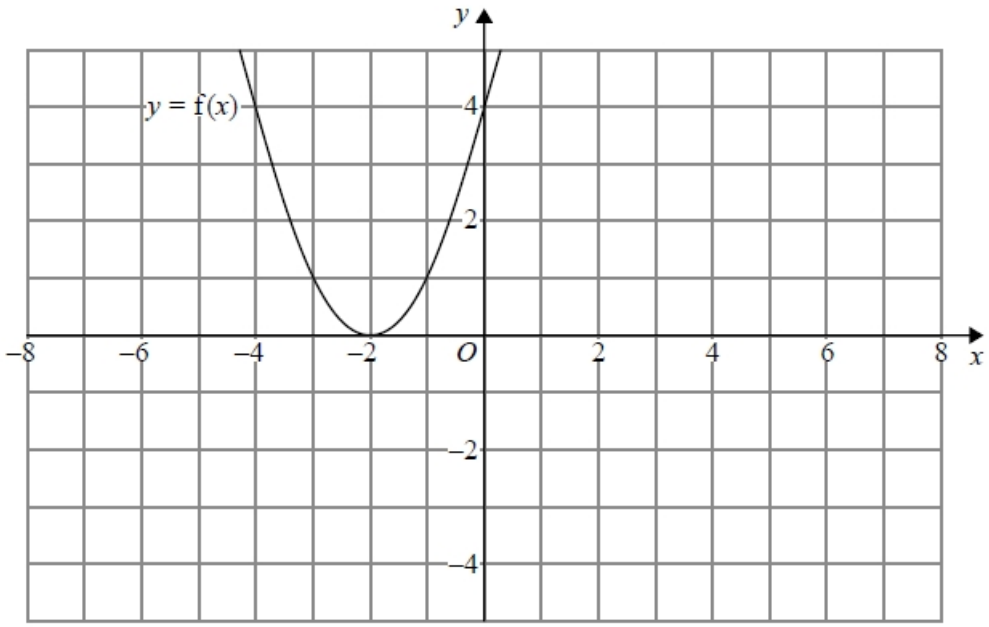


(2)

(Total for question = 4 marks)

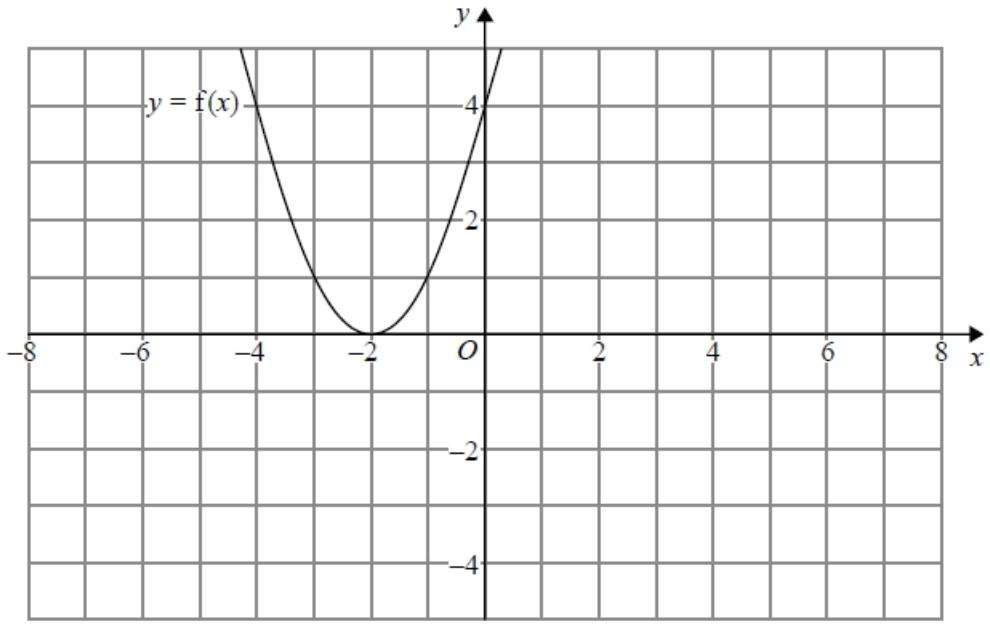
Q3.

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



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

(1)



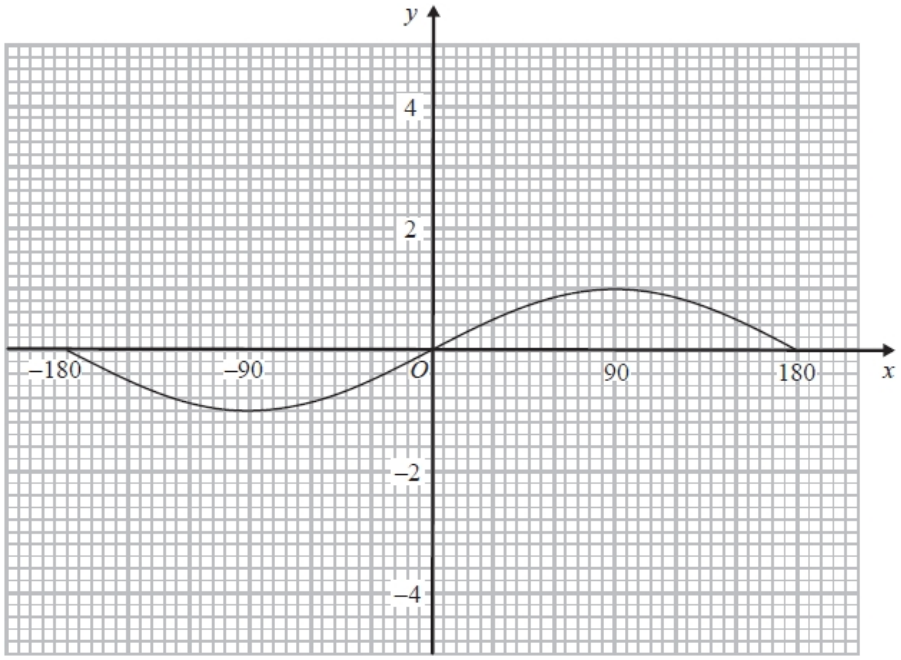
(b) On this grid, sketch the graph of $y = -f(x) + 3$

(1)

(Total for question = 2 marks)

Q4.

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



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

(Total for question = 2 marks)

Q5.

The table shows some values of x and y that satisfy the equation $y = a\cos x° + b$

x	0	30	60	90	120	150	180
y	3	$1 + \sqrt{3}$	2	1	0	$1 - \sqrt{3}$	−1

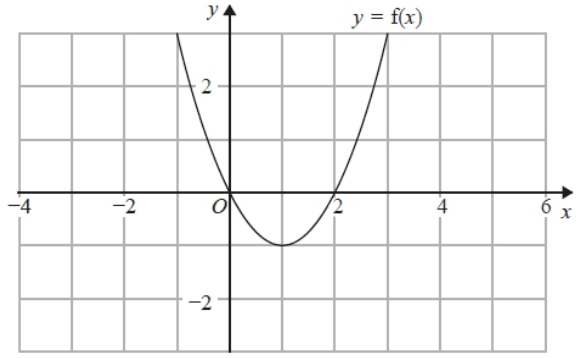
Find the value of y when $x = 45$

.....

(Total for question = 4 marks)

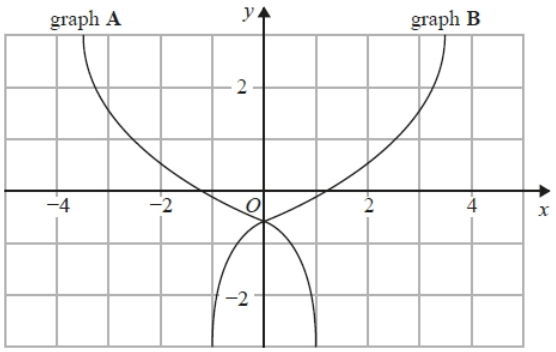
Q6.

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



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

(1)



On the grid, graph **A** has been reflected to give graph **B**.

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

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

.....

(1)

(Total for question = 2 marks)

Q7.

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.

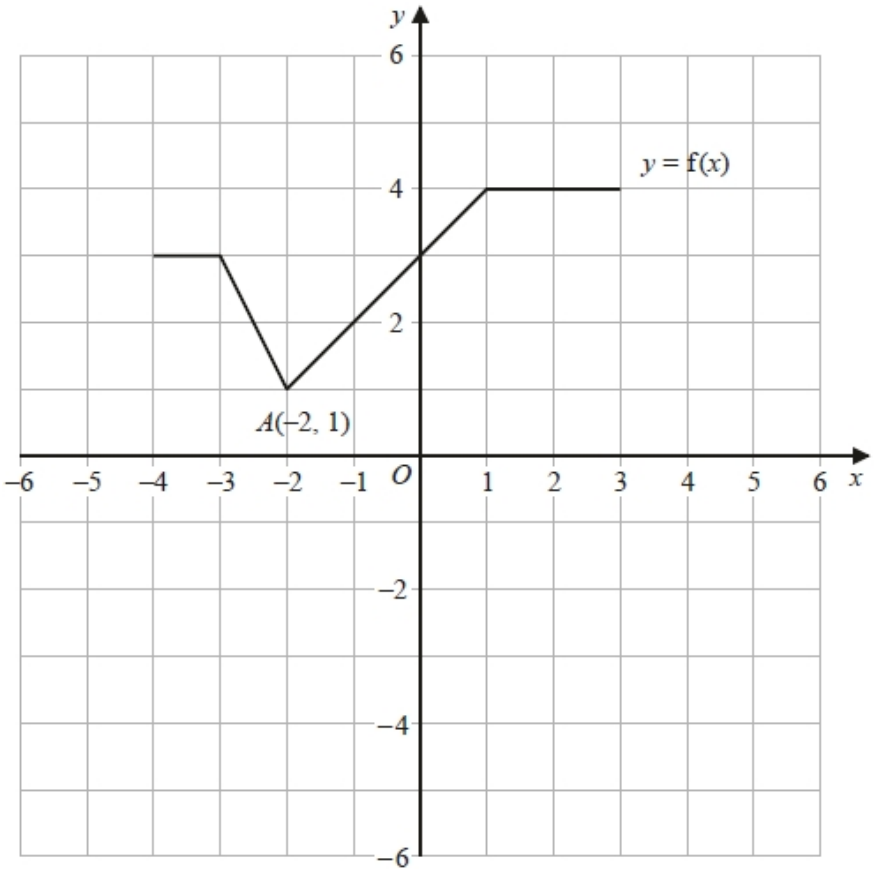
Find the coordinates of Q.

(..... , ...)

(Total for question = 2 marks)

Q8.

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



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

(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.

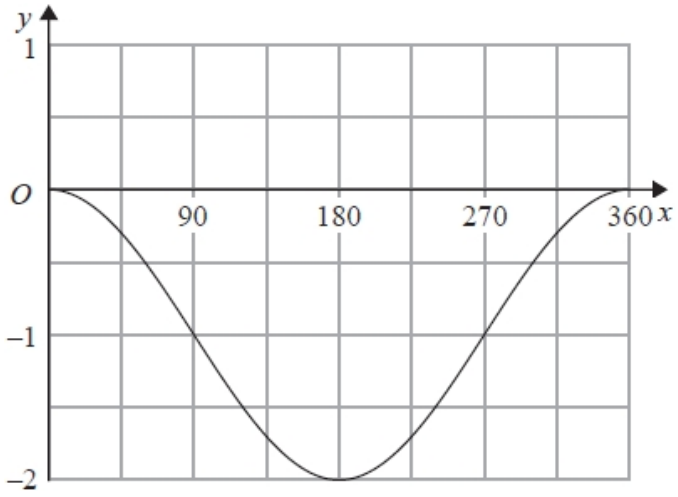
(..... , ...)

(1)

(Total for question = 3 marks)

Q9.

Here is a sketch of the curve $y = \sin(x + a)° + b$



Given that $0 < a < 360$
find the value of a and the value of b.

a = ...

b = ...

(Total for question = 2 marks)

Q10.

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 $y = -f(x + 3)$

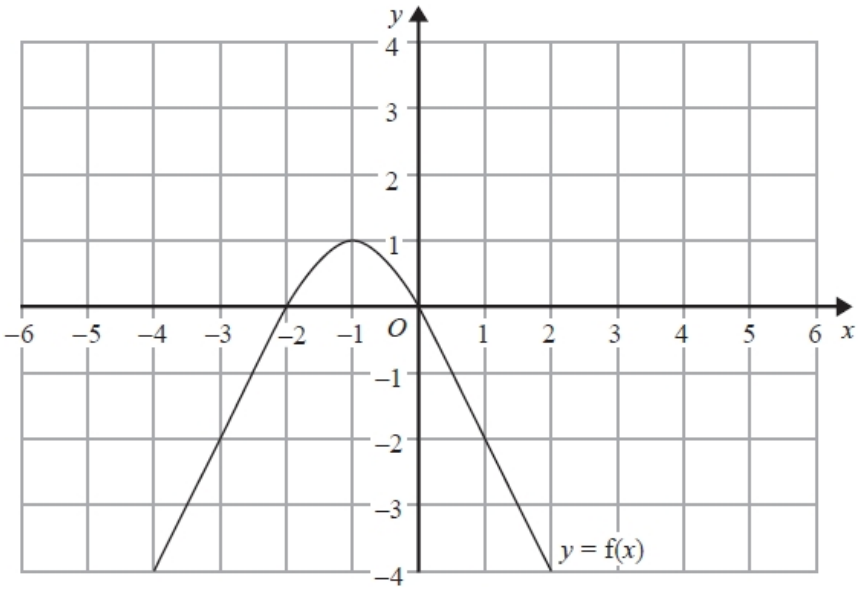
The coordinates of point A are (9, 1)
Find the coordinates of point P.

(..... , ...)

(Total for question is 2 marks)

Q11.

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)

(Total for question = 2 marks)