Write your name here

Surname	Other names

In the style of:

Edexcel GCSE

Centre Number	Candidate Number

Mathematics A

Transformation of Curves

Higher Tier

Past Paper Style Questions
Arranged by Topic

Paper Reference
1MA0/1H

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- **Calculators must not be used.**

Information

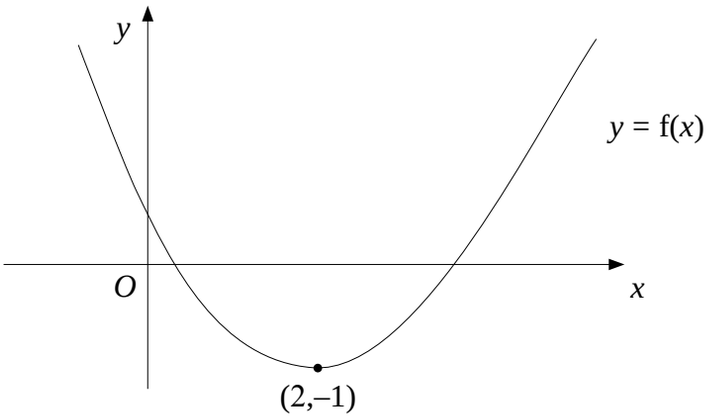
- The total mark for this paper is 100
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

1.



The diagram shows part of the curve with equation $y = f(x)$

The minimum point of the curve is at (2,–1)

(a) Write down the coordinates of the minimum point of the curve with equation

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

.....

(ii) $y = 2f(x)$

.....

(iii) $y = f(2x)$

.....

(3)

The curve $y = f(x)$ is reflected in the y axis.

(b) Find the equation of the curve following this transformation.

$y =$ .....

(1)

The curve with equation $y = f(x)$ has been transformed to give the curve with equation $y = f(x) + 2$

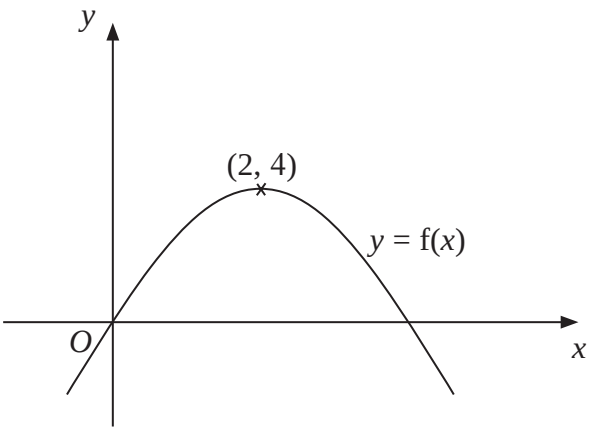
(c) Describe the transformation.

.....

(1)

(Total 5 marks)

2.



The diagram shows part of the curve with equation $y = f(x)$.
The coordinates of the maximum point of this curve are (2, 3).

Write down the coordinates of the maximum point of the curve with equation

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

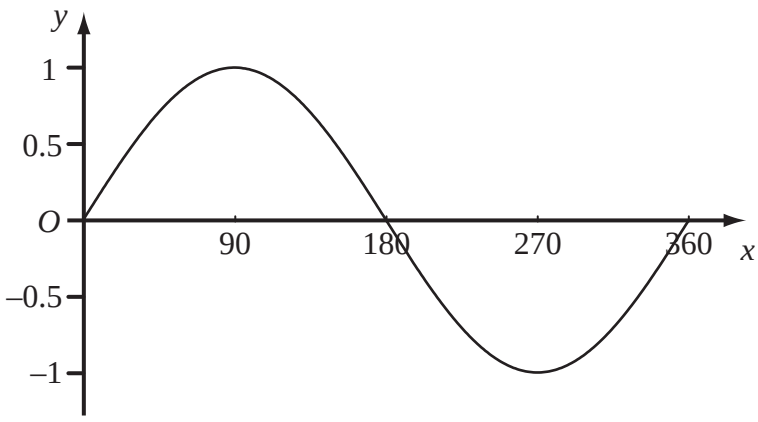
(..... , ...)
(1)

(b) $y = 2f(x)$

(..... , ...)
(1)

(Total 2 marks)

3. The diagram shows a sketch of the curve $y = \sin x°$ for $0 \leqslant x \leqslant 360$



The exact value of $\sin 60° = \frac{\sqrt{3}}{2}$

(a) Write down the exact value of

(i) $\sin 120°$,

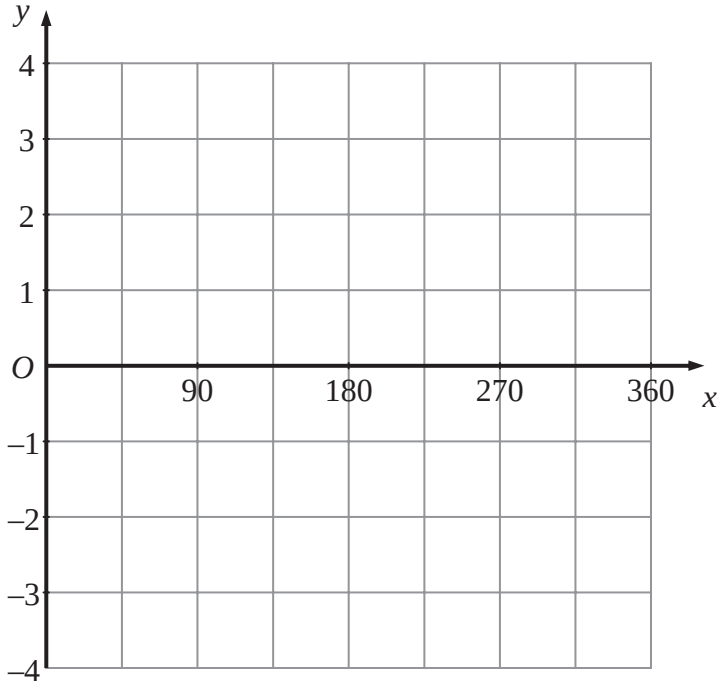
.....

(ii) $\sin 300°$.

.....

(2)

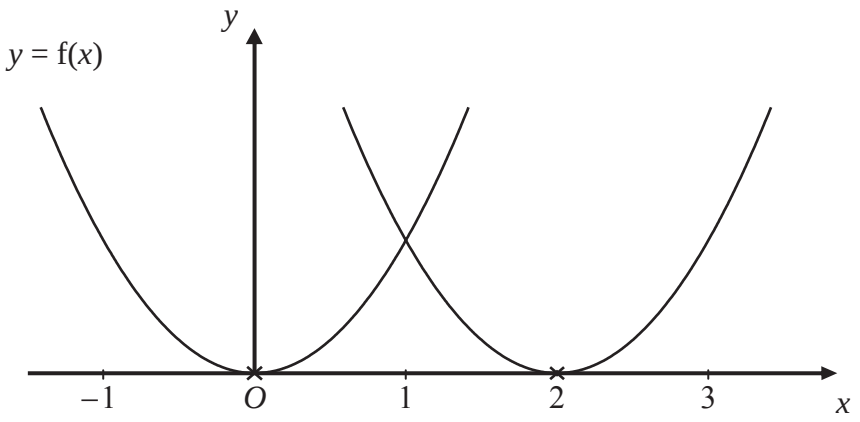
(b) On the grid below, sketch the graph of $y = 3 \sin 2x°$ for $0 \leq x \leq 360$



(2)

(Total 4 marks)

4.

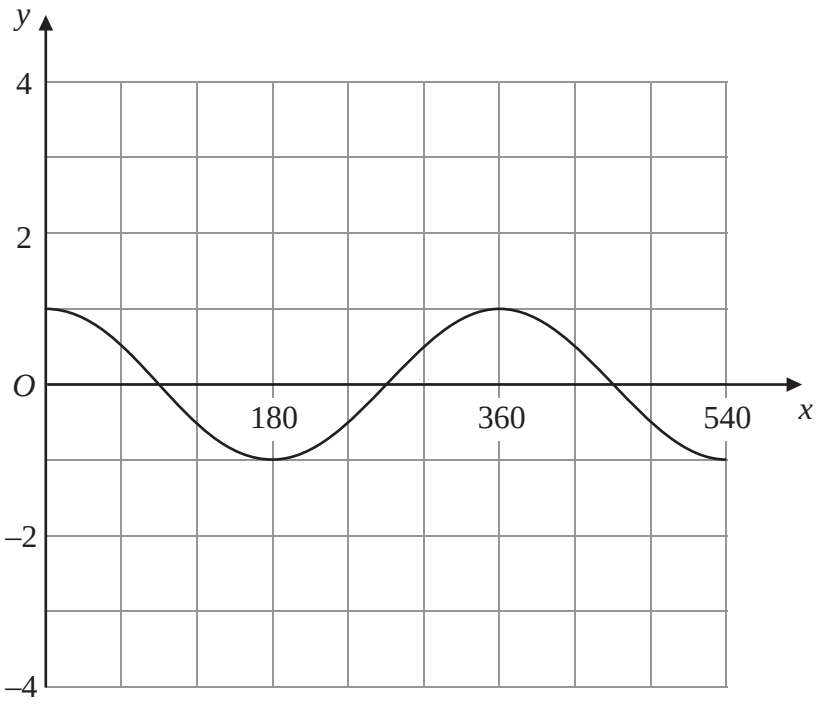


The curve with equation $y = f(x)$ is translated so that the point at (0, 0) is mapped onto the point (2, 0).

(a) Find an equation of the translated curve.

.....

(2)



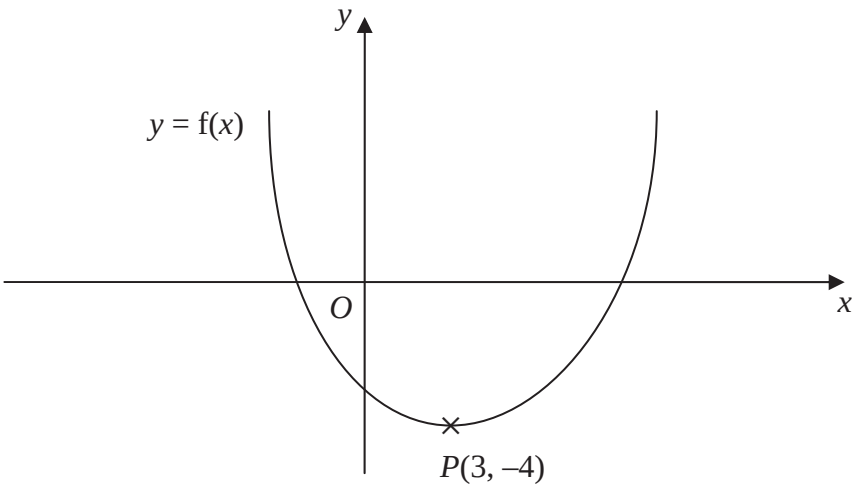
The grid shows the graph of $y = \cos x°$ for values of x from 0 to 540

(b) On the grid, sketch the graph of $y = 3\cos(2x°)$ for values of x from 0 to 540

(2)

(Total 4 marks)

5. This is a sketch of the curve with the equation $y = f(x)$.
The only minimum point of the curve is at $P(3, -4)$.



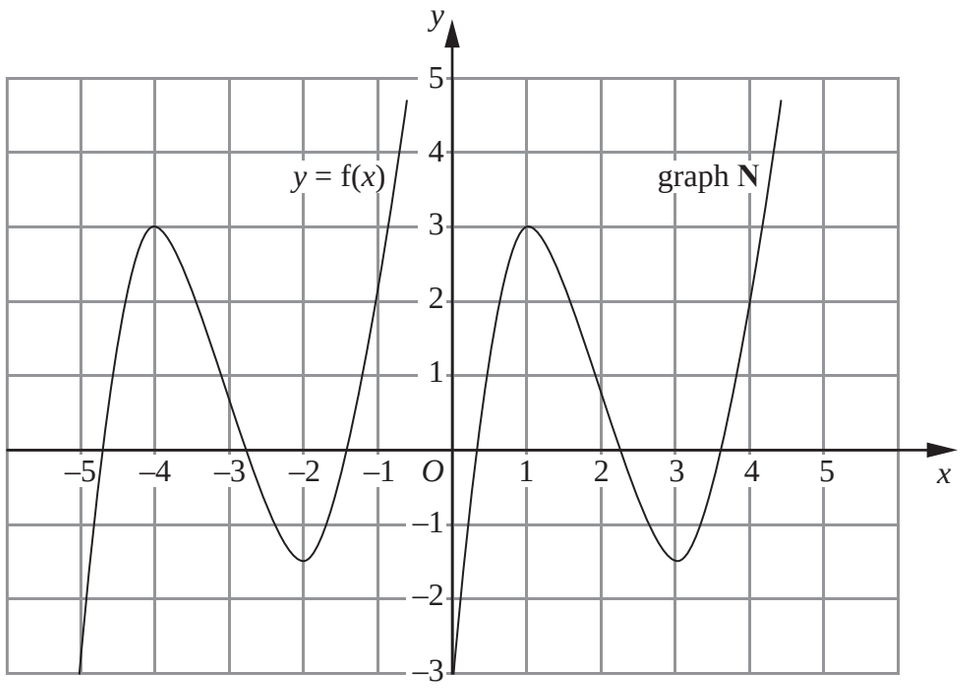
(a) Write down the coordinates of the minimum point of the curve with the equation $y = f(x - 2)$

(..... , ...)
(2)

(b) Write down the coordinates of the minimum point of the curve with the equation $y = f(x + 5) + 6$

(..... , ...)

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



The graph N is a translation of the graph of $y = f(x)$.

(a) Write down in terms of f, the equation of graph N

$y =$ .....

(1)

The graph of $y = f(x)$ has a maximum point at $(-4, 3)$.

(b) Write down the coordinates of the maximum point of the graph of $y = f(-x)$.

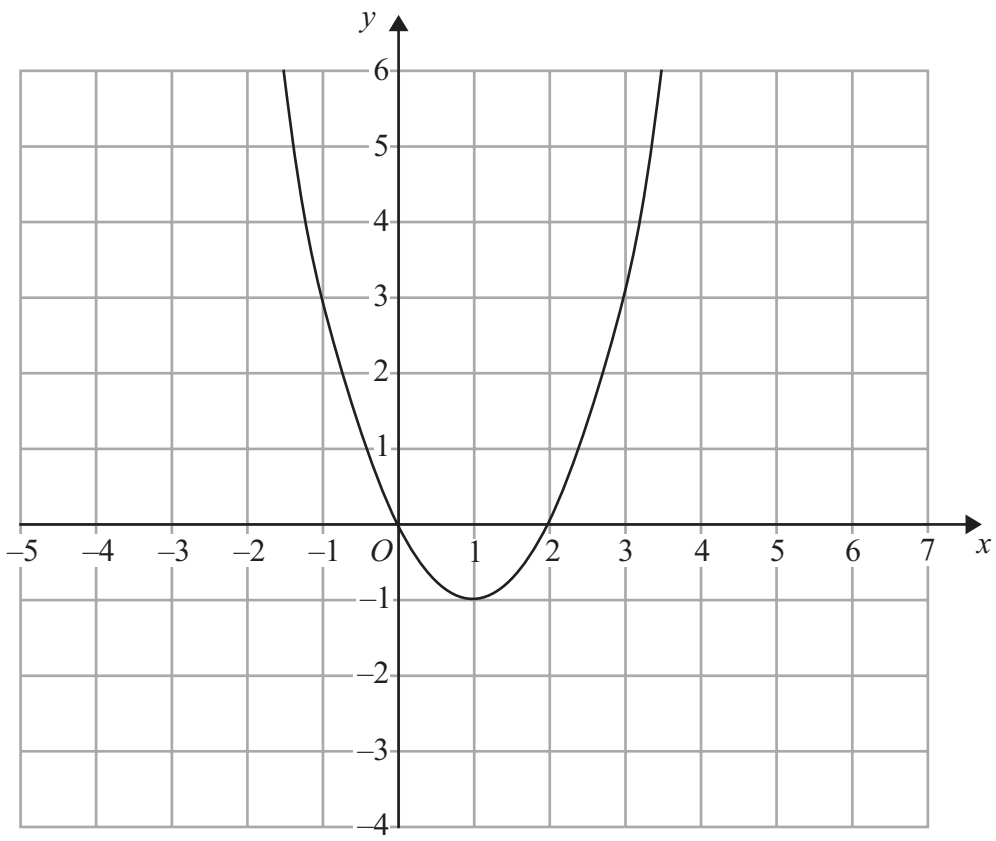
(..... , ...)

(2)

(Total 3 marks)

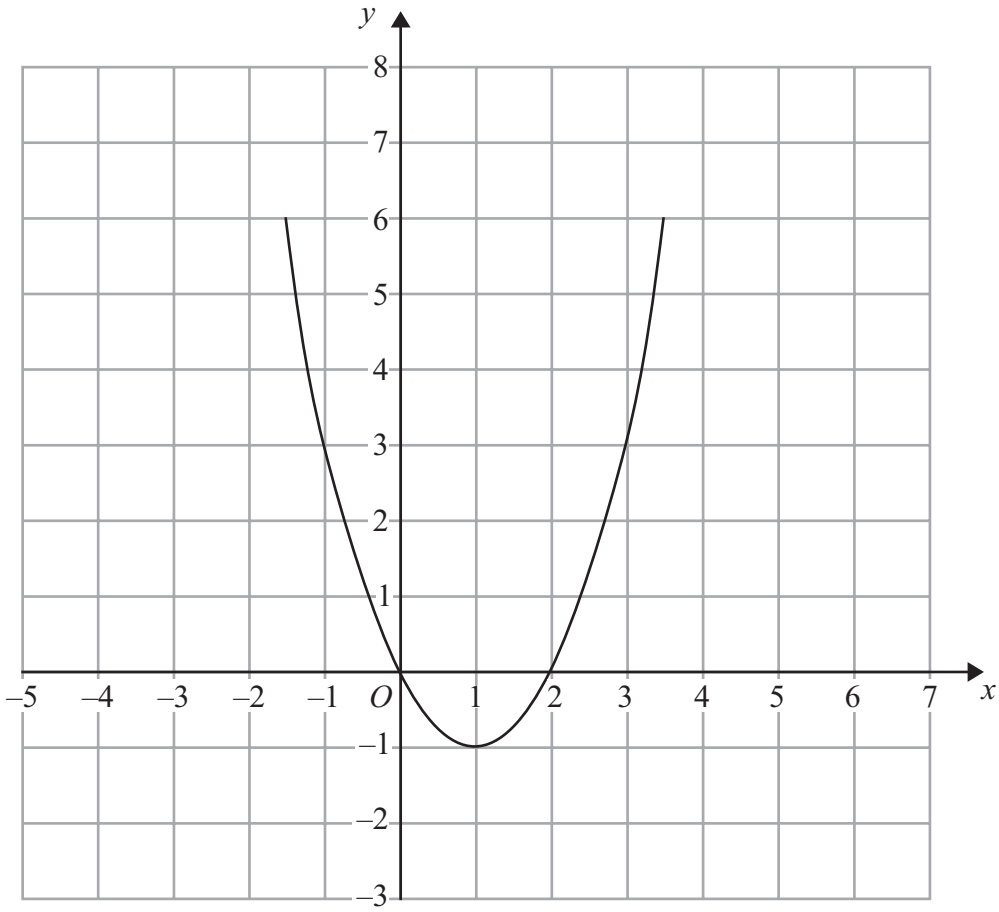
7. The graph of $y = f(x)$ is shown on each of the grids.

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



(2)

(b) On this grid, sketch the graph of $y = 2f(x)$



(Total 4 marks)

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