Name: ___________________________

GCSE (1 – 9)
Transforming Graphs

Instructions

• Use **black** ink or ball-point pen.
• Answer all questions.
• Answer the questions in the spaces provided
  – *there may be more space than you need.*
• Diagrams are **NOT** accurately drawn, unless otherwise indicated.
• You must **show all your working out.**

Information

• The marks for each question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

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

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1 The graph of \( y = f(x) \) is shown below.

The coordinates of the maximum point of this curve are \((1, 4)\).

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

(a) \( y = f(x + 3) \)

(b) \( y = -f(x) \)

(c) \( y = f(x) - 3 \)

(d) \( y = f(-x) \)

(Total for question 1 is 4 marks)
The coordinates of the minimum point of this curve are (2, –3).

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

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

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(Total for question 2 is 4 marks)
The graph of \( y = f(x) \) is shown below.

The coordinates of the maximum point of this curve are \((-2, 1)\).

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

(a) \( y = f(x - 3) \)

..........................

(1)

(b) \( y = f(-x) \)

..........................

(1)

(c) \( y = -f(x + 2) \)

..........................

(1)

(d) \( y = f(-x) - 1 \)

..........................

(1)

(Total for question 3 is 4 marks)
The graph of \( y = f(x) \) is shown on both grids below.

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

(b) On the grid above, sketch the graph of \( y = f(x + 2) \).

(Total for question 4 is 4 marks)
5 The graph of \( y = f(x) \) is shown on both grids below.

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

(b) On the grid above, sketch the graph of \( y = f(x) - 2 \).

(Total for question 5 is 4 marks)
The graph of \( y = f(x) \) is shown on both grids below.

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

(b) On the grid above, sketch the graph of \( y = f(x - 1) \).

(Total for question 6 is 4 marks)
The graph of \( y = f(x) \) is shown on the grid.

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

The graph of \( y = f(x) \) has a turning point at \((-1, 2)\).

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

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(Total for question 7 is 2 marks)