

Graph Transformations

Please write clearly in block capitals

Forename:

Surname:

Materials

For this paper you must have:

- mathematical instruments



You **can** use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

Advice

- In all calculations, show clearly how you work out your answer.

1 For a curve $y = f(x)$, describe the following transformations:

1(a)

$$f(x - 1)$$

[1 mark]

1(b)

$$f(x) + 7$$

[1 mark]

1(c)

$$f(x + 5)$$

[1 mark]

Turn over for next question

Turn over ►

2 The graph of $y = f(x)$ has been drawn below.

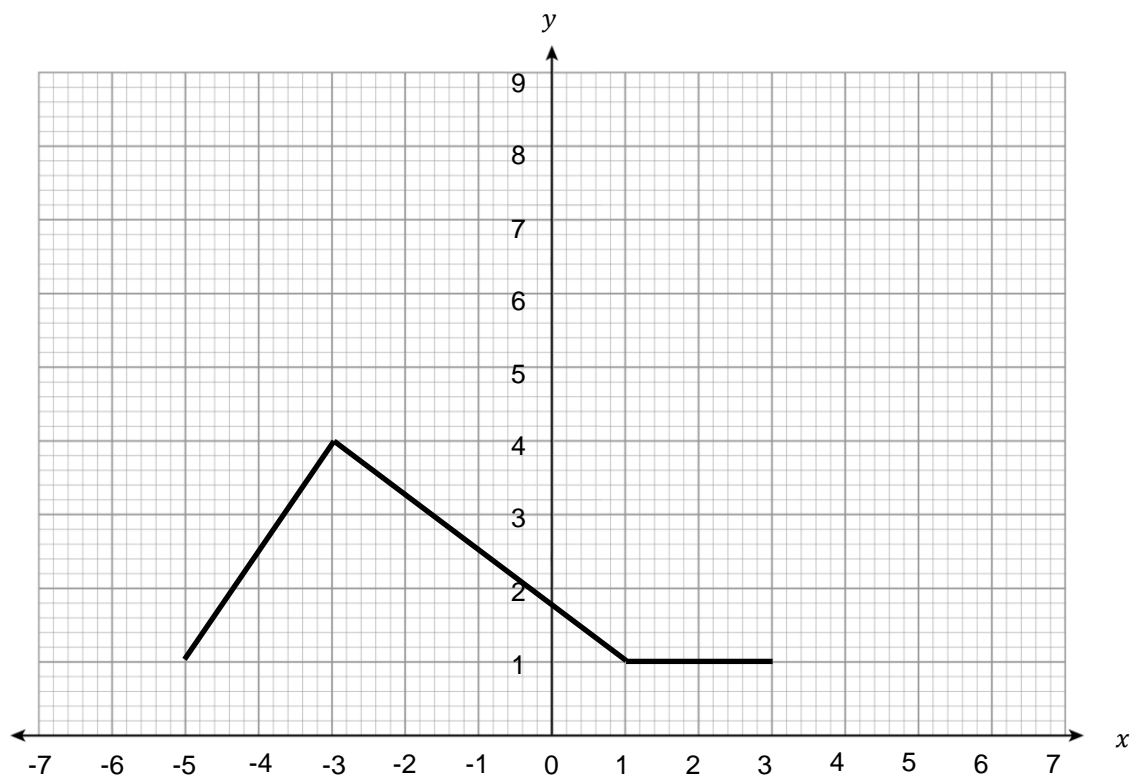
On the same axes, draw the graphs of the following, labelling them A,B and C respectively.

$$f(x) + 2$$

$$f(x - 3)$$

$$f(x + 1) - 1$$

[4 marks]



Turn over ►

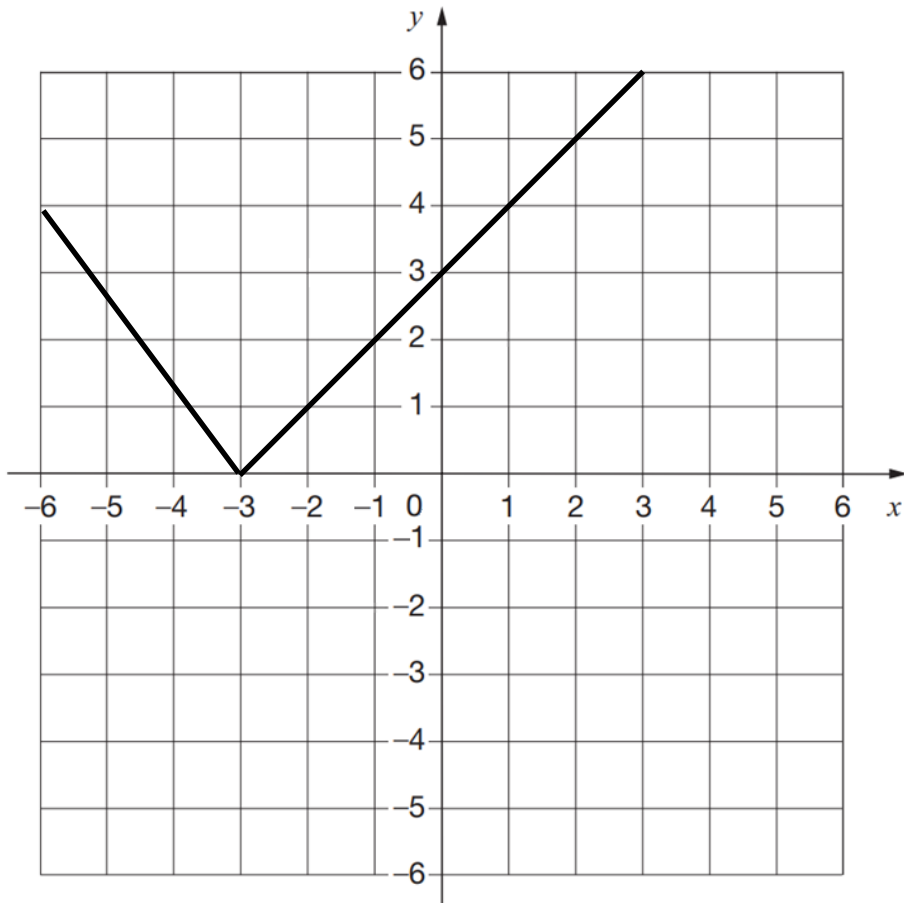
- 3 The graph of $y = f(x)$ has been drawn below. On the same axes, draw the graphs of the following, labelling them A,B and C respectively.

$$f(-x)$$

$$-f(x)$$

$$f(x - 2)$$

[3 marks]



GCSE Maths Revision Cards

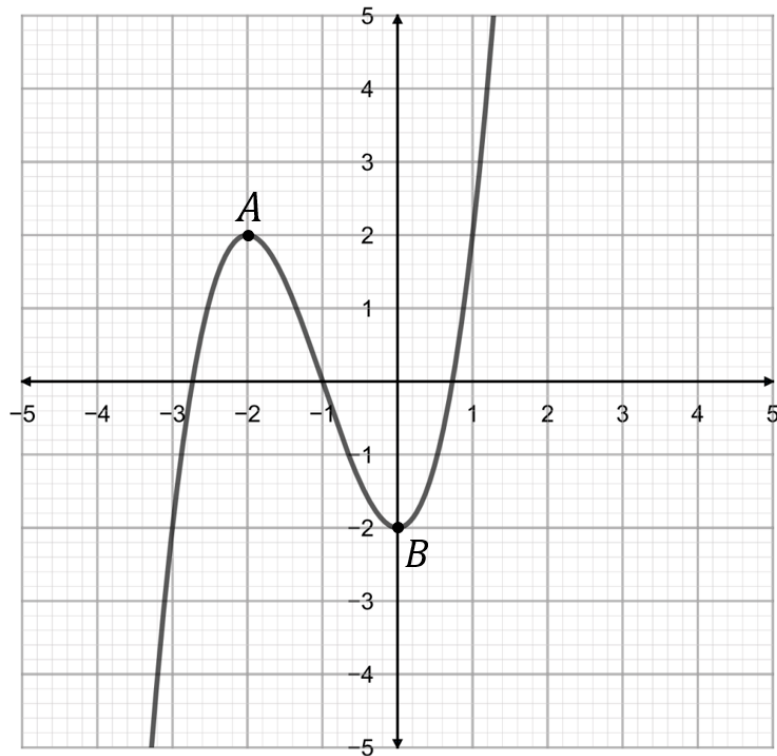
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Turn over ►

4 The graph of $y = f(x)$ has been drawn below.



4(a) Write down the new co-ordinates of the points A, B, under the following transformations:

$$-f(x)$$

[3 marks]

$$A = \underline{\hspace{4cm}}$$

$$B = \underline{\hspace{4cm}}$$

4(b) $f(x - 3)$

[3 marks]

$$A = \underline{\hspace{4cm}}$$

$$B = \underline{\hspace{4cm}}$$

Turn over for next question

Turn over ►

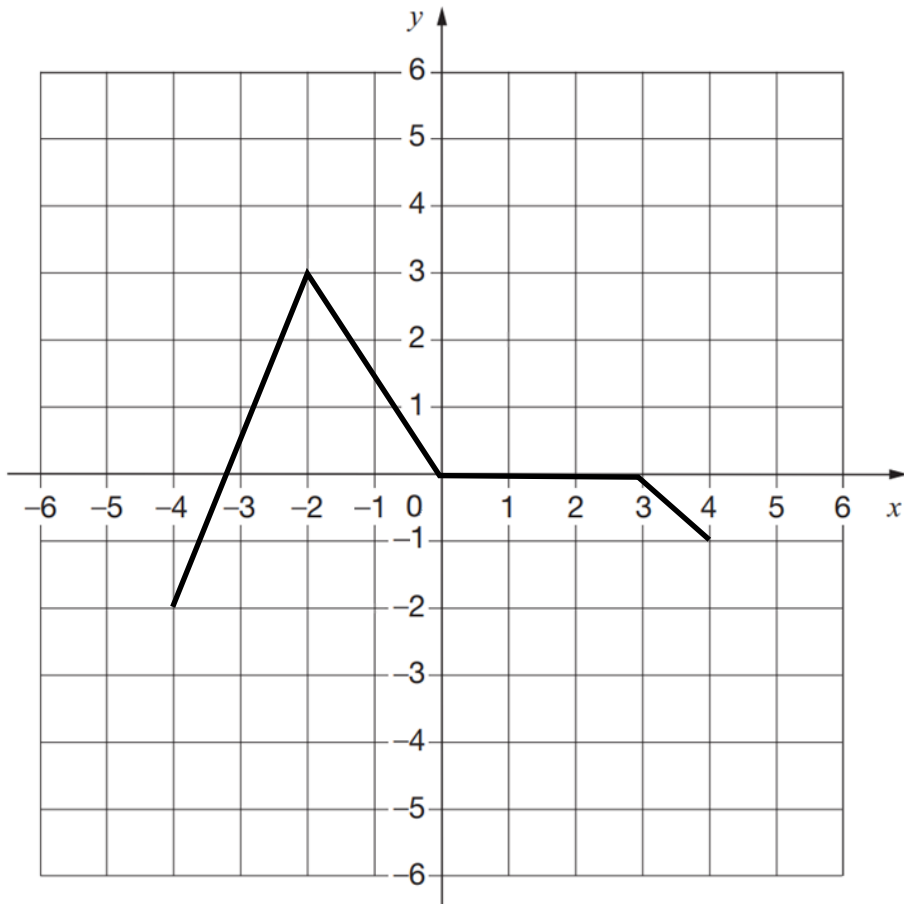
- 5(a)** The graph of $y = f(x)$ has been drawn below. On the same axes, draw the graphs of:

$$f(x + 3)$$

$$f(x) - 3$$

Label the two graphs A and B respectively

[4 marks]



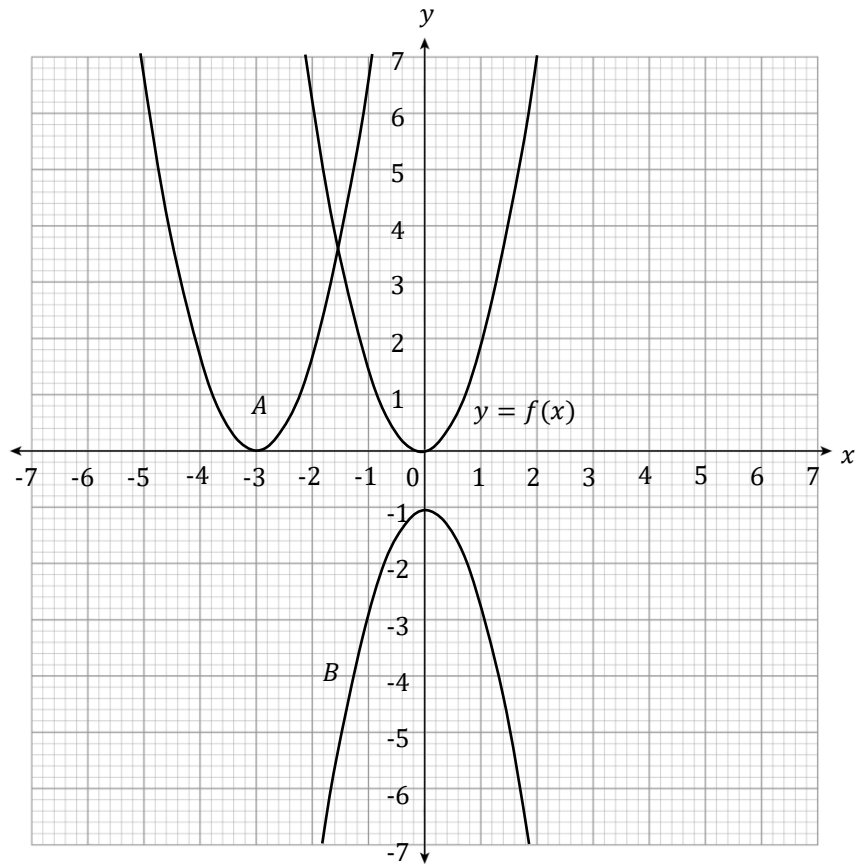
- 5(b)** What transformation(s) need to be made to transform A into B?

[2 marks]

Answer _____

Turn over for next question

- 6 The three graphs marked on the axes below are all transformations of $y = f(x)$



Determine the transformations that have taken place to transform $y = f(x)$ into the following

- 6(a) $y = f(x)$ into A

[1 mark]

Answer _____

- 6(b) $y = f(x)$ into B

[1 mark]

Answer _____

End of Questions