

**Wednesday 5 June 2013 – Afternoon**

**FSMQ ADVANCED LEVEL**

**6993/01** Additional Mathematics

**PRINTED ANSWER BOOK**

Candidates answer on the Printed Answer Book.

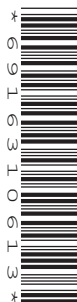
**OCR supplied materials:**

- Question Paper 6993 (inserted)

**Other materials required:**

- Scientific or graphical calculator

**Duration:** 2 hours



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|-----------------------|--|----------------------|--|
| Candidate<br>forename |  | Candidate<br>surname |  |
| Centre number         |  | Candidate number     |  |

**INSTRUCTIONS TO CANDIDATES**

These instructions are the same on the Printed Answer Book and the Question Paper.

- The Question Paper will be found in the centre of the Printed Answer Book.
- Write your name, centre number and candidate number in the spaces provided on the Printed Answer Book. Please write clearly and in capital letters.
- **Write your answer to each question in the space provided in the Printed Answer Book.** Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Do **not** write in the bar codes.
- You are permitted to use a scientific or graphical calculator in this paper.
- Final answers should be given correct to three significant figures where appropriate.

**INFORMATION FOR CANDIDATES**

This information is the same on the Printed Answer Book and the Question Paper.

- The number of marks is given in brackets [ ] at the end of each question or part question on the Question Paper.
- You are advised that an answer may receive **no marks** unless you show sufficient detail of the working to indicate that a correct method is being used.
- The total number of marks for this paper is **100**.
- The Printed Answer Book consists of **20** pages. The Question Paper consists of **8** pages. Any blank pages are indicated.

**Section A**

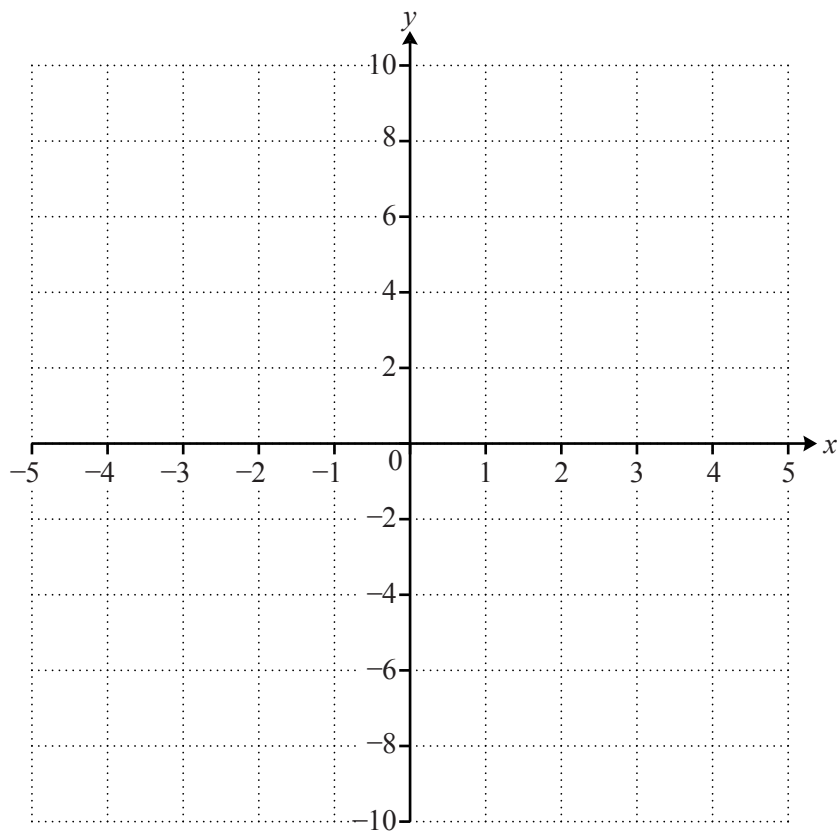
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5(ii)



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**6 (i)**

**6 (ii)**

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[illegible]

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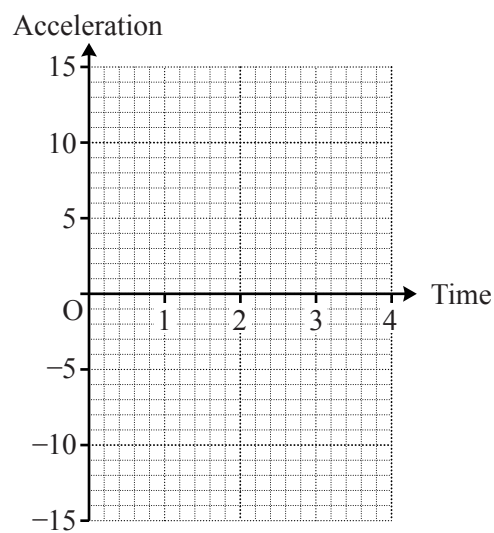
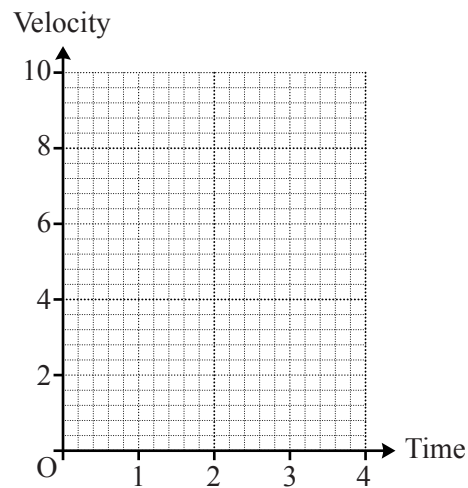
## Section B

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| <b>11 (a)</b>     |  |
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| <b>11 (b)</b><br><b>(ii)</b>  |  |
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| <b>11 (b)</b><br><b>(iii)</b> |  |
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| <b>11 (c)</b>                 |  |
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| <b>12 (b)</b><br><b>(ii)</b> |                             |
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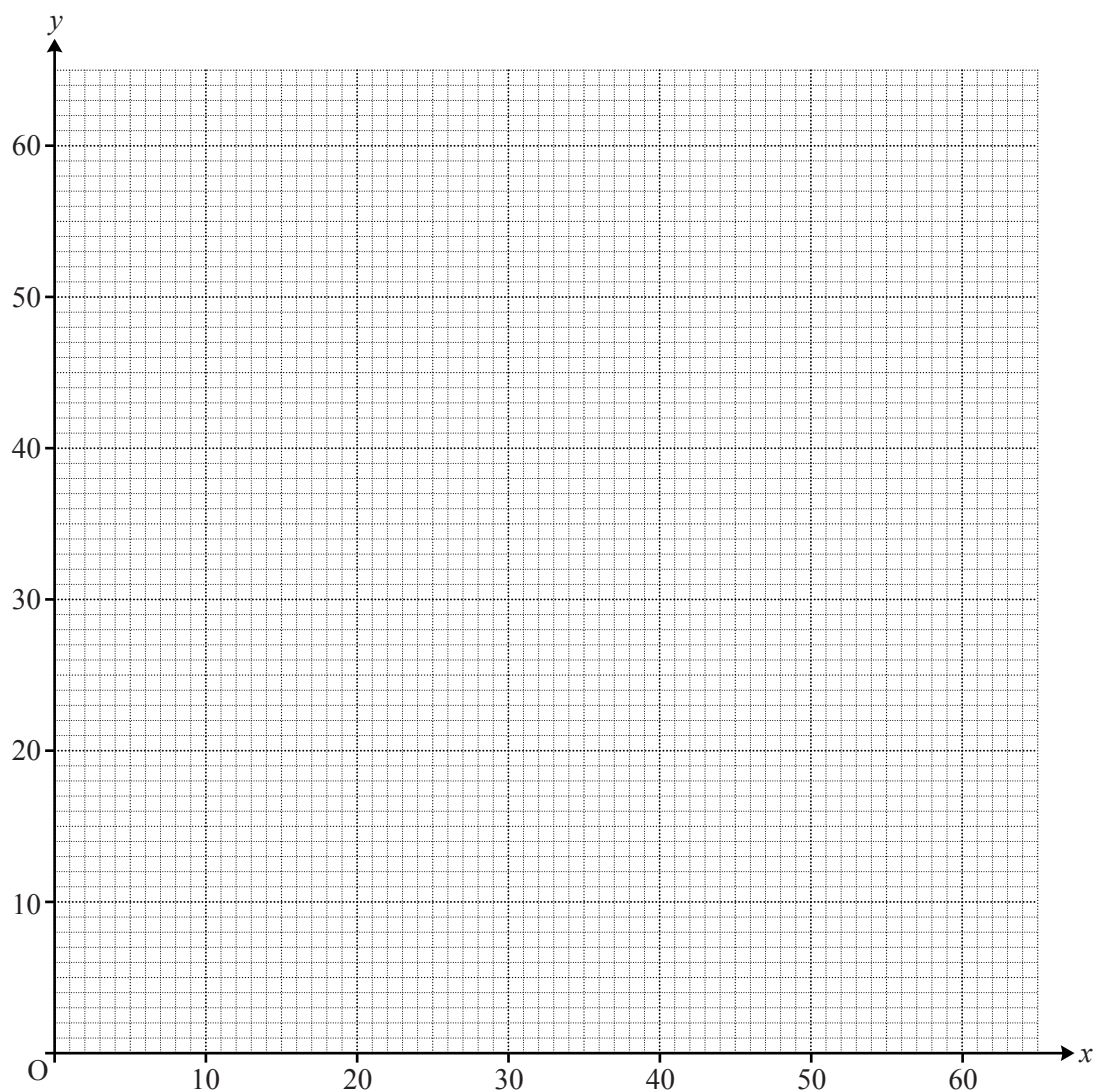
12(c)



*There is a spare copy of these graphs on page 18. If you wish to offer a second attempt, then you must cross through both graphs on this page.*

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| <b>13(i)</b>   |                                                    |
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| <b>13(ii)</b>  | <i>For the graph of part (ii) see facing page.</i> |
| <b>13(iii)</b> |                                                    |
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13(ii)

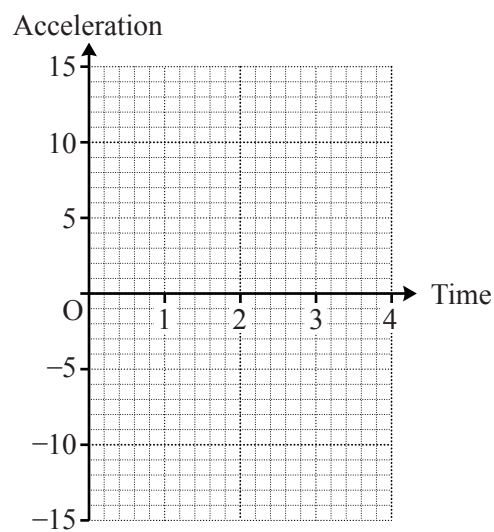
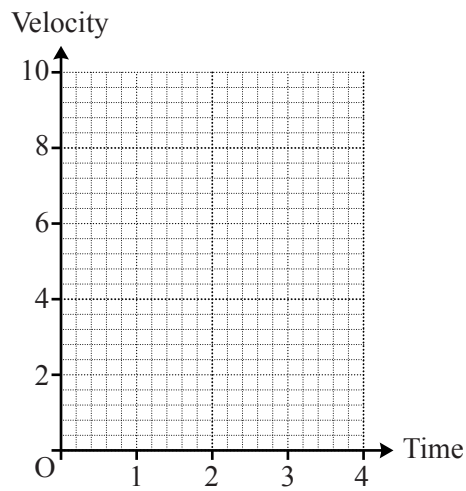


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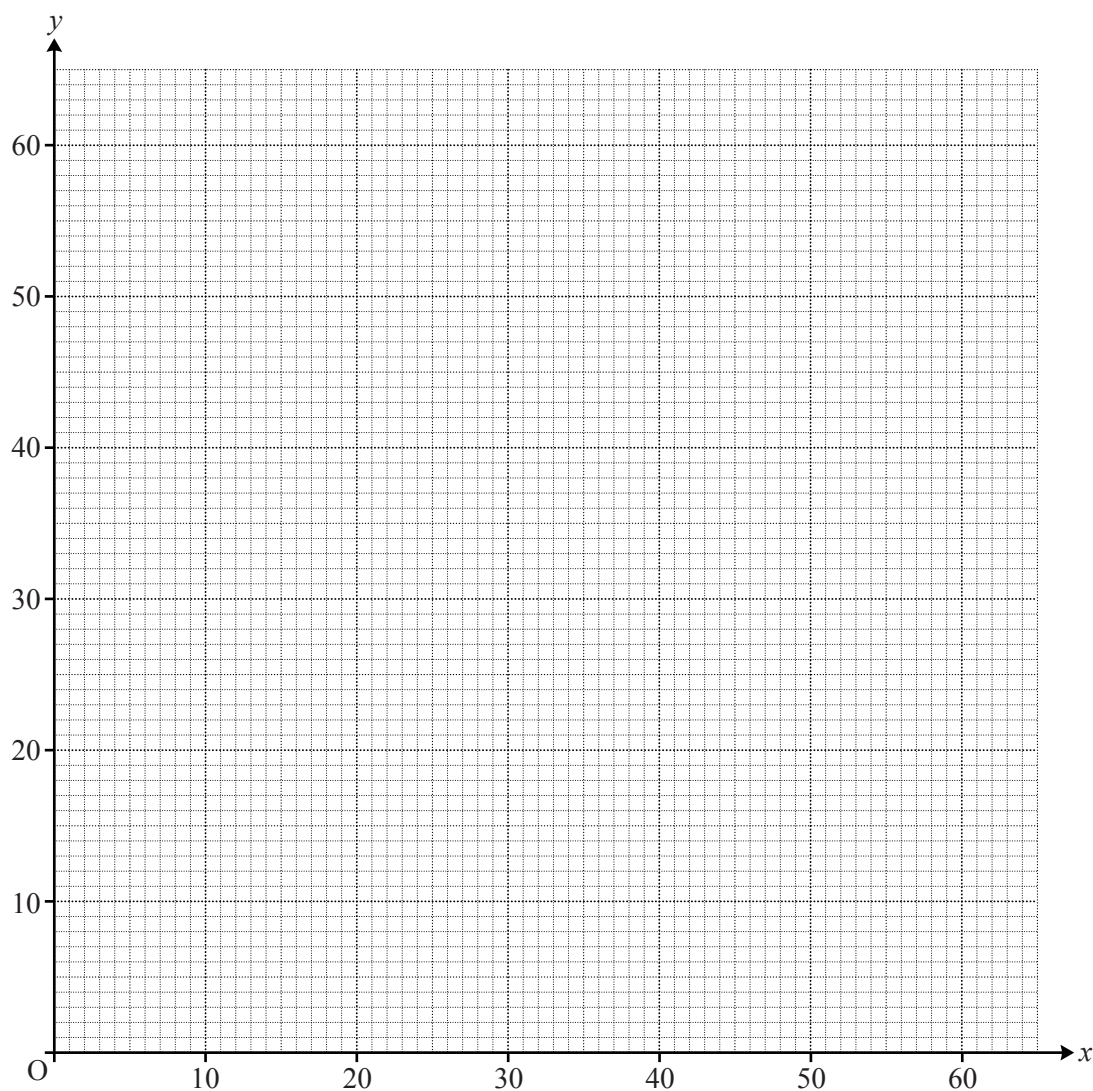
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| <b>14(iv)</b>  |  |
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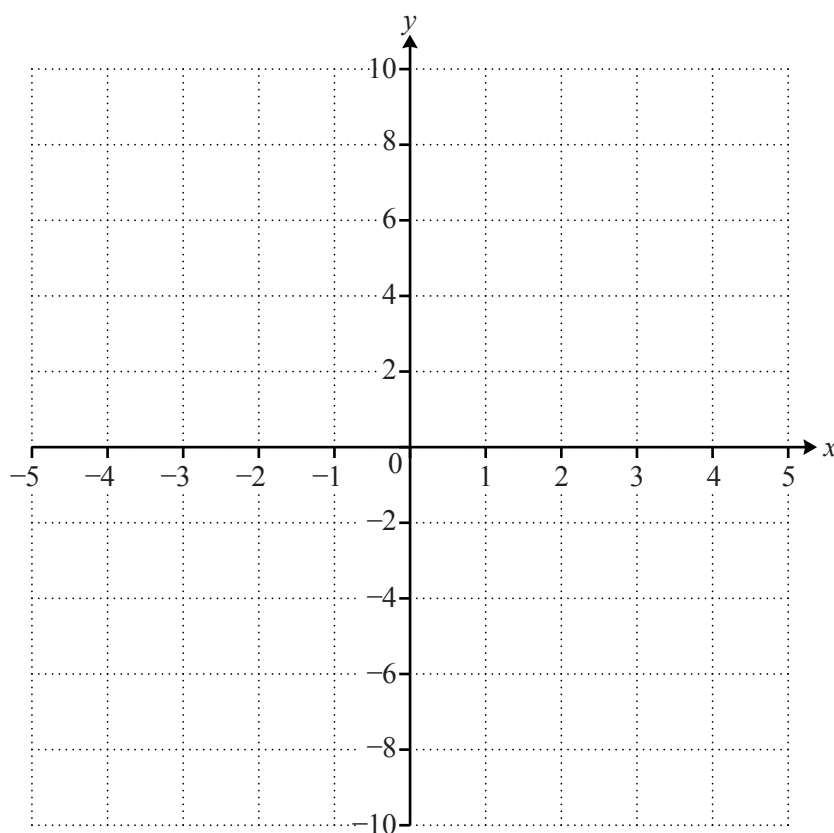
*This is a spare copy of the graphs for Question 12 (c)  
Only write on this page if you want to offer a second attempt at the graph.  
If you do so, then you must cross through the first attempt on page 13.*



*This is a spare copy of the graph for Question 13 (ii)  
Only write on this page if you want to offer a second attempt at the graph.  
If you do so, then you must cross through the first attempt on page 15.*



*This is a spare copy of the graph for Question 5 (ii)  
Only write on this page if you want to offer a second attempt at the graph.  
If you do so, then you must cross through the first attempt on page 4.*



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