

**OXFORD CAMBRIDGE AND RSA EXAMINATIONS**  
**FSMQ ADVANCED LEVEL**  
**6993/01**

**Additional Mathematics**

**PRINTED ANSWER BOOK**

**WEDNESDAY 5 JUNE 2013: Afternoon**

**DURATION: 2 hours**

**plus your additional time allowance**

**MODIFIED ENLARGED**

**Candidates answer on the Printed Answer Book.**

**OCR SUPPLIED MATERIALS:**

**Question Paper 6993 (inserted)**

**OTHER MATERIALS REQUIRED:**

**Scientific or graphical calculator**

**READ INSTRUCTIONS OVERLEAF**

## **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.**
- **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 44 pages. The Question Paper consists of 16 pages.**

## SECTION A

**1 (i)**

**1 (ii)**

2	

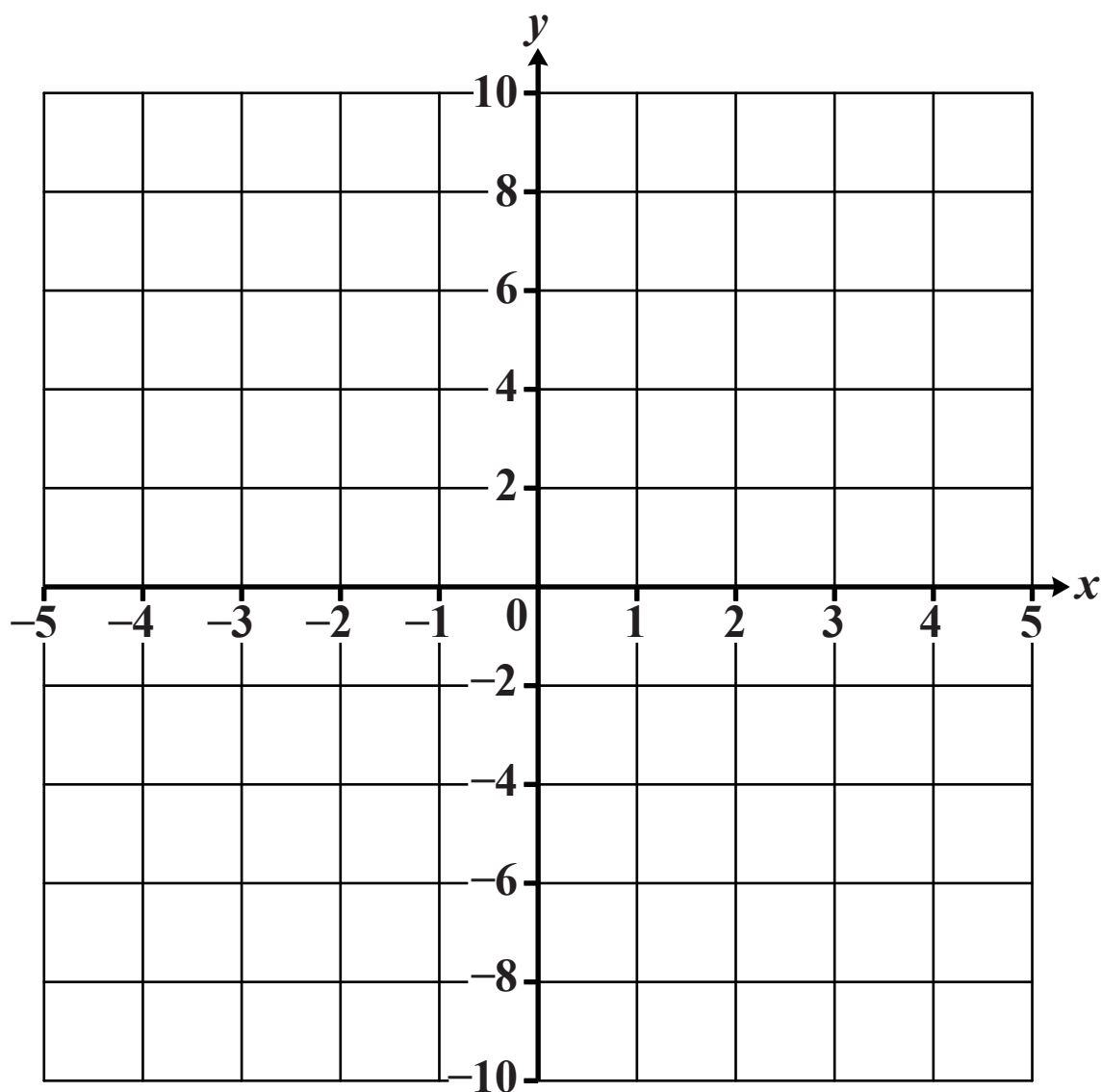
3	

4	

<b>5(i)</b>	



**5(ii)**



**There is a spare copy of this graph on page 41. If you wish to offer a second attempt, then you must cross through the attempt on this page.**

<b>6(i)</b>	



7

(answer space continued on next page)

**7 (continued)**

**(answer space continued on next page)**

<b>7</b>	<b>(continued)</b>

**8**

**(answer space continued on next page)**

**8 (continued)**

**(answer space continued on next page)**



<b>8</b>	<b>(continued)</b>

<b>9(i)</b>	

<b>9(ii)</b>	

<b>9 (iii)</b>	

<b>10(i)</b>	

10(ii)	
	(answer space continued on next page)

**(answer space continued on next page)**

<b>10 (ii)</b>	<b>(continued)</b>

## SECTION B

<b>11 (a)</b>	
<b>11 (b)</b> <b>(i)</b>	
<b>(answer space continued on next page)</b>	



<b>11 (b)</b>	<b>(continued)</b>
	<b>(i)</b>

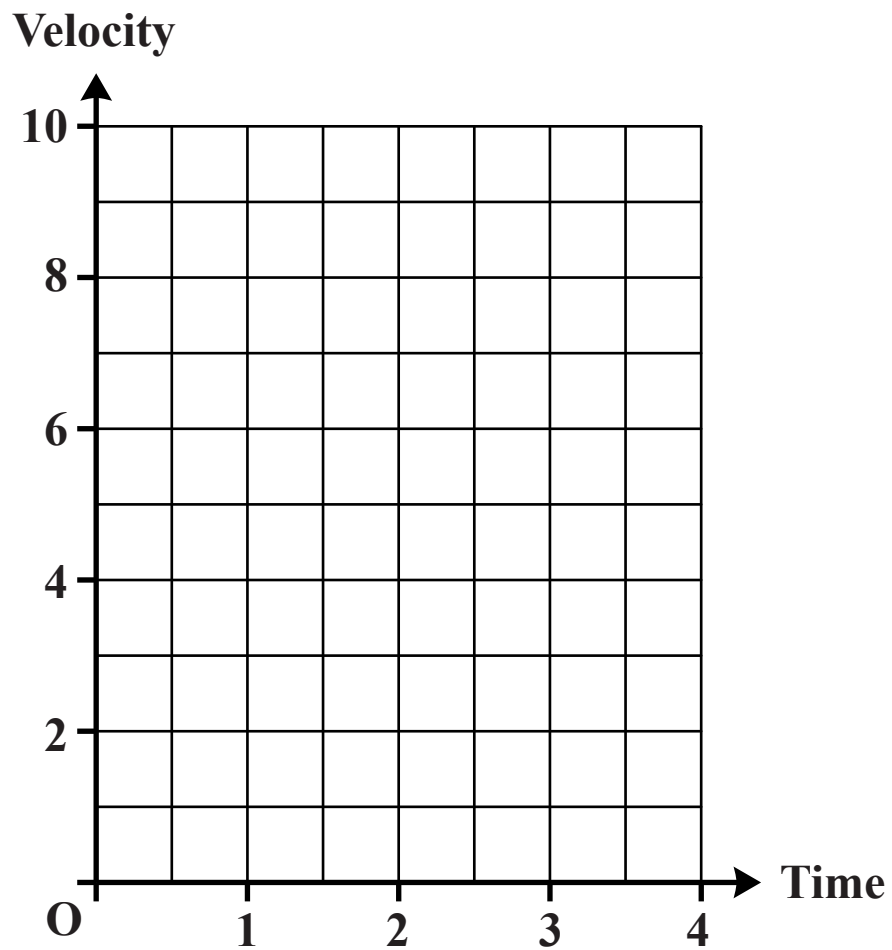
<b>11 (b)</b> <b>(ii)</b>	
<b>11 (b)</b> <b>(iii)</b>	
<b>11 (c)</b>	
<b>(answer space continued on next page)</b>	

<b>11 (c)</b>	<b>(continued)</b>

<b>12(a)</b>	

<b>12 (b)</b> <b>(i)</b>	
<b>12 (b)</b> <b>(ii)</b>	

**12 (c)**

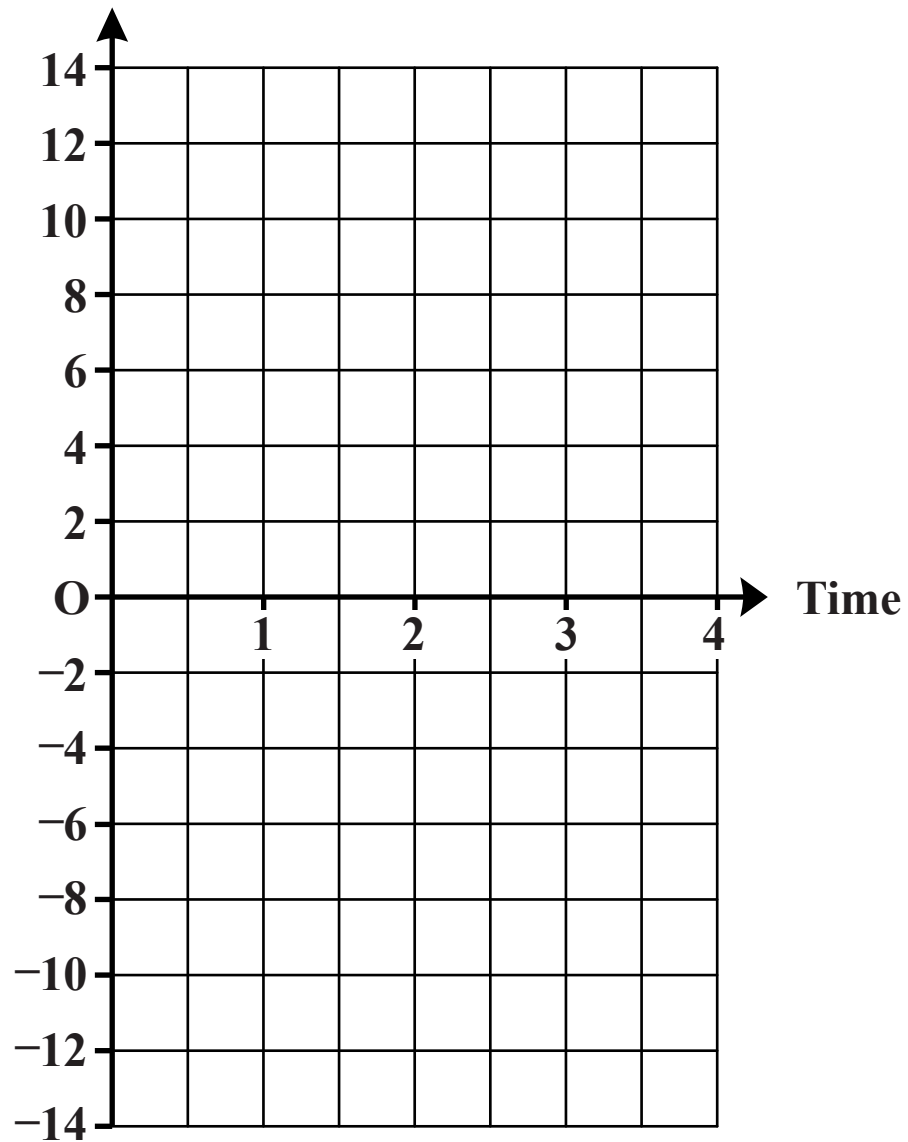


**There is a spare copy of this graph on page 38. If you wish to offer a second attempt, then you must cross through the attempt on this page.**

**(continued on next page)**

**12 (c) (continued)**

**Acceleration**

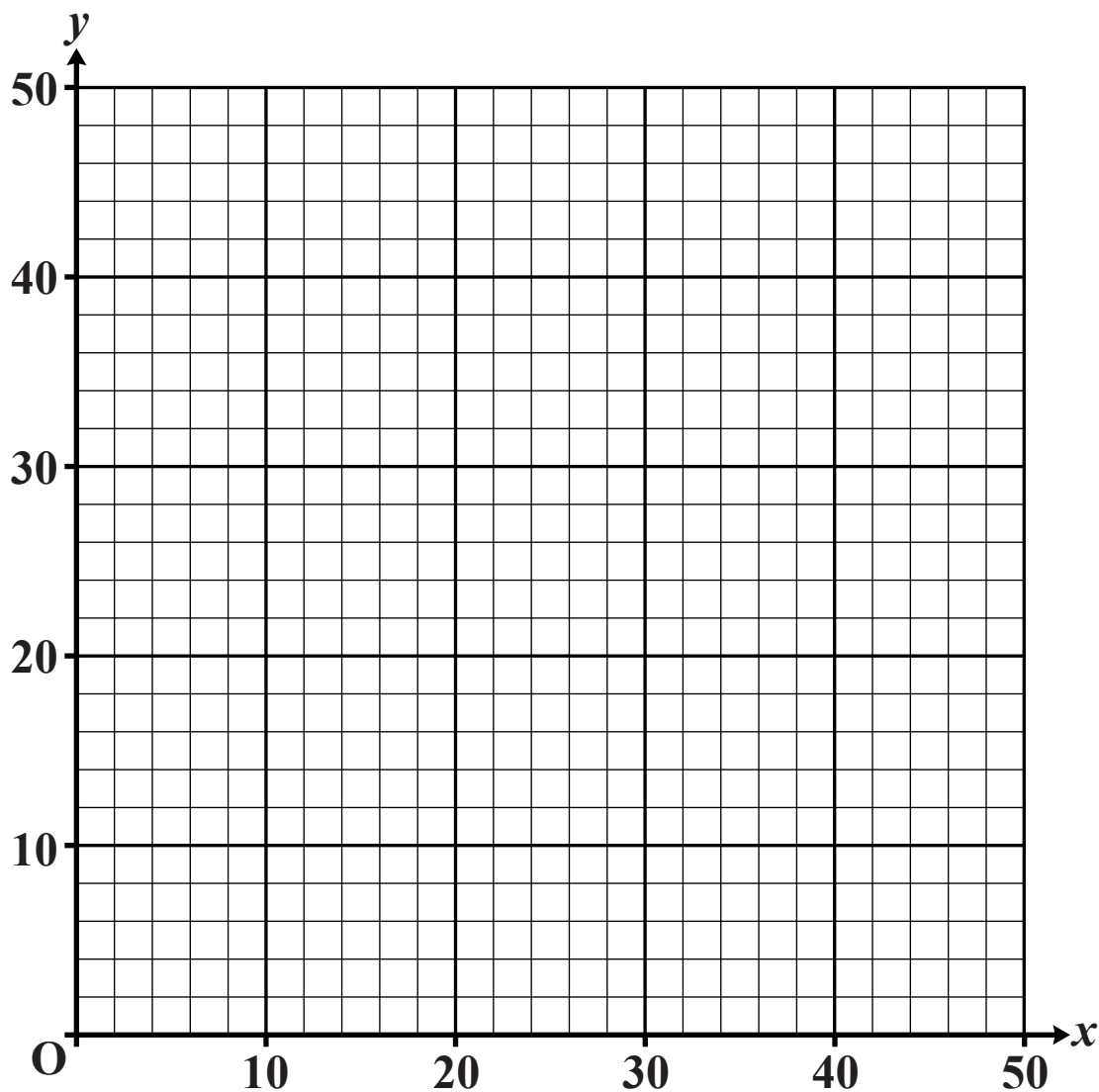


**There is a spare copy of this graph on page 39. If you wish to offer a second attempt, then you must cross through the attempt on this page.**

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



**13 (ii)**



**There is a spare copy of this graph on page 40. If you wish to offer a second attempt, then you must cross through the attempt on this page.**

**14(i)**

**(answer space continued on next page)**

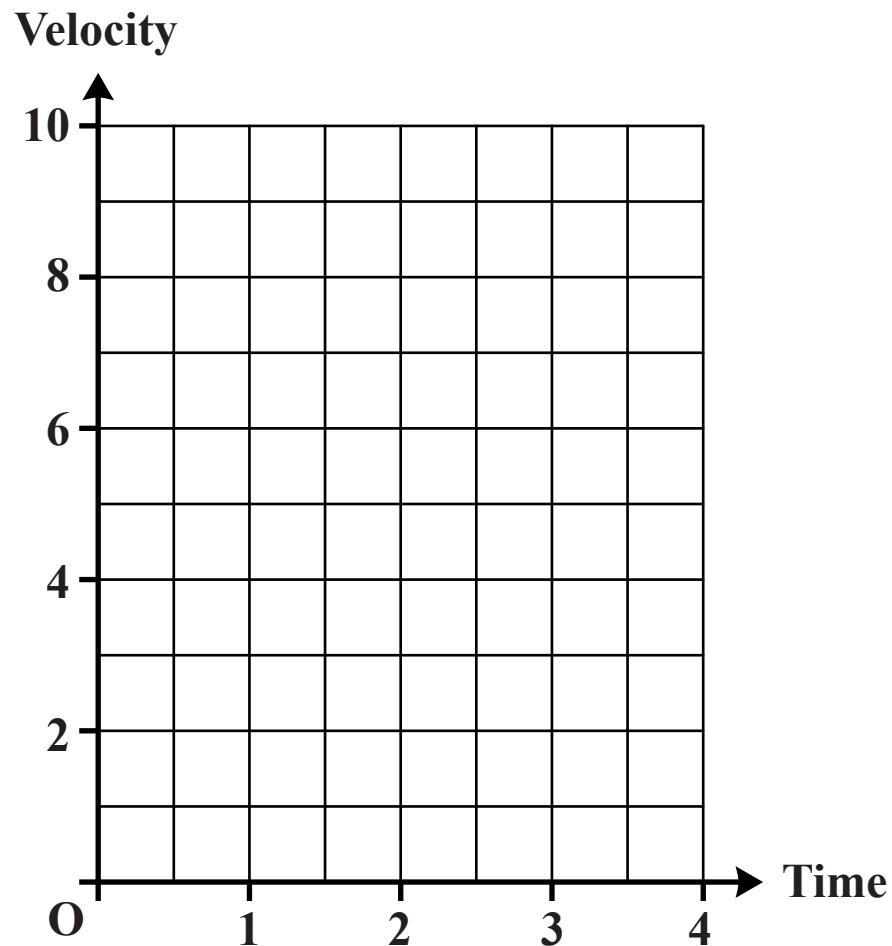
<b>14 (i) (continued)</b>	
<b>14 (ii)</b>	

<b>14 (iii)</b>	
	<b>14 (iv)</b>
<b>(answer space continued on next page)</b>	

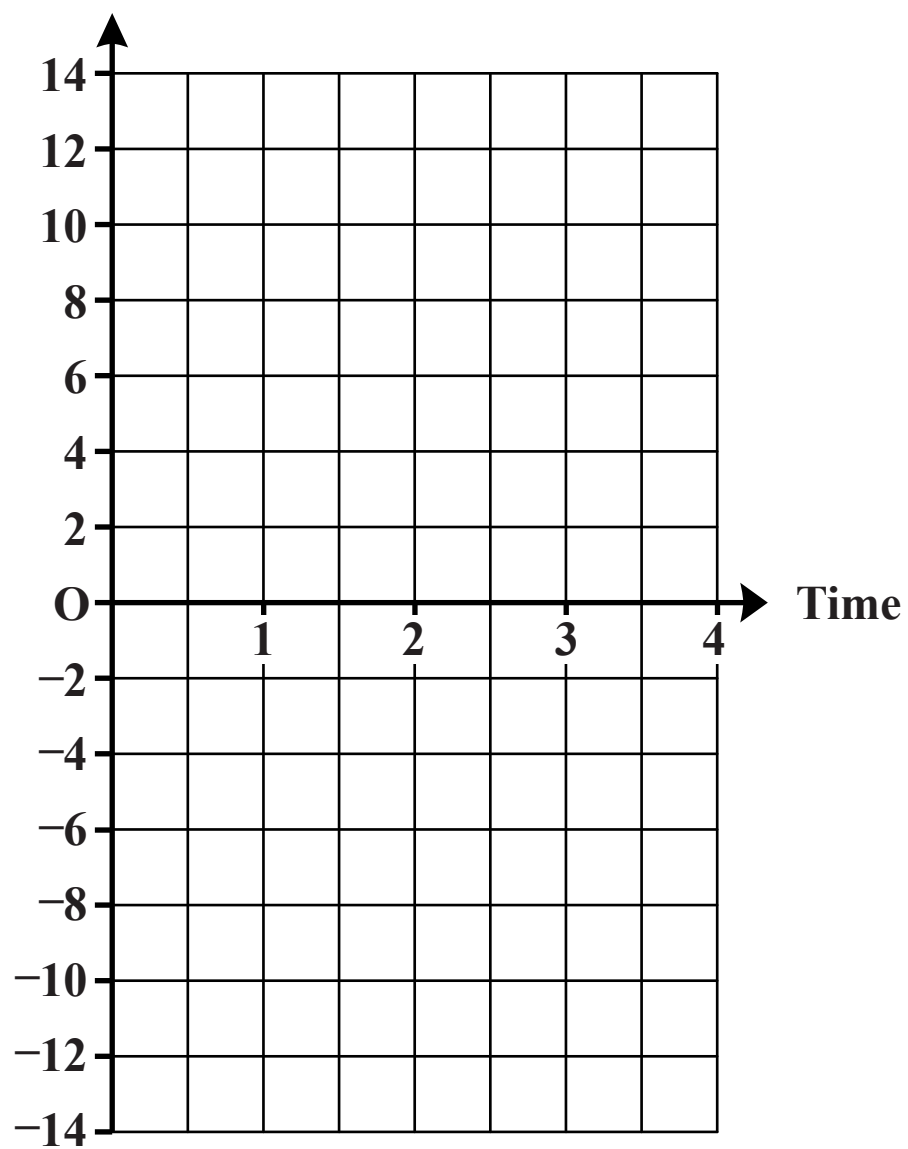
<b>14 (iv)</b>	<b>(continued)</b>

**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 30 or 31.**

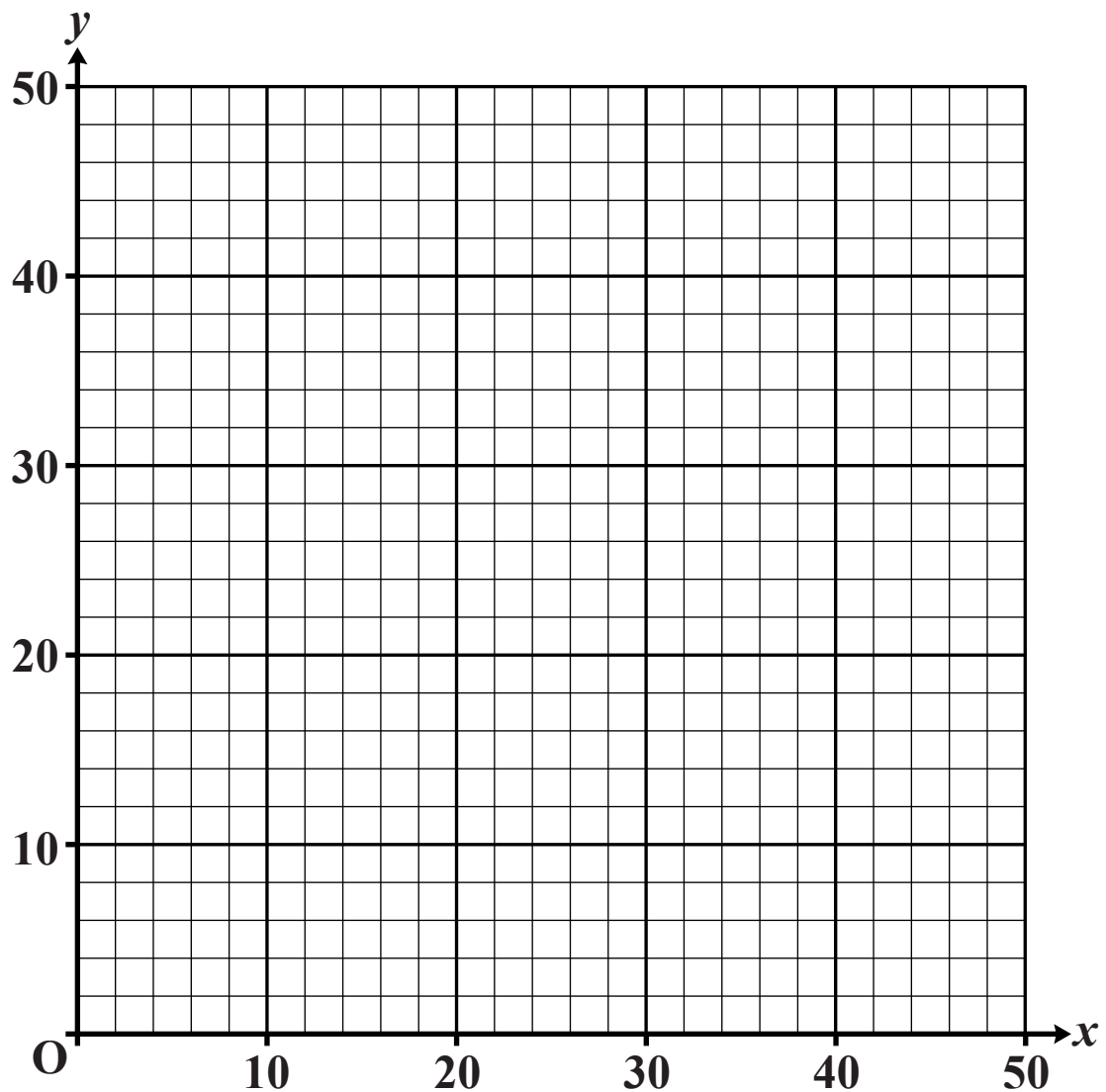


**Acceleration**



**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.**

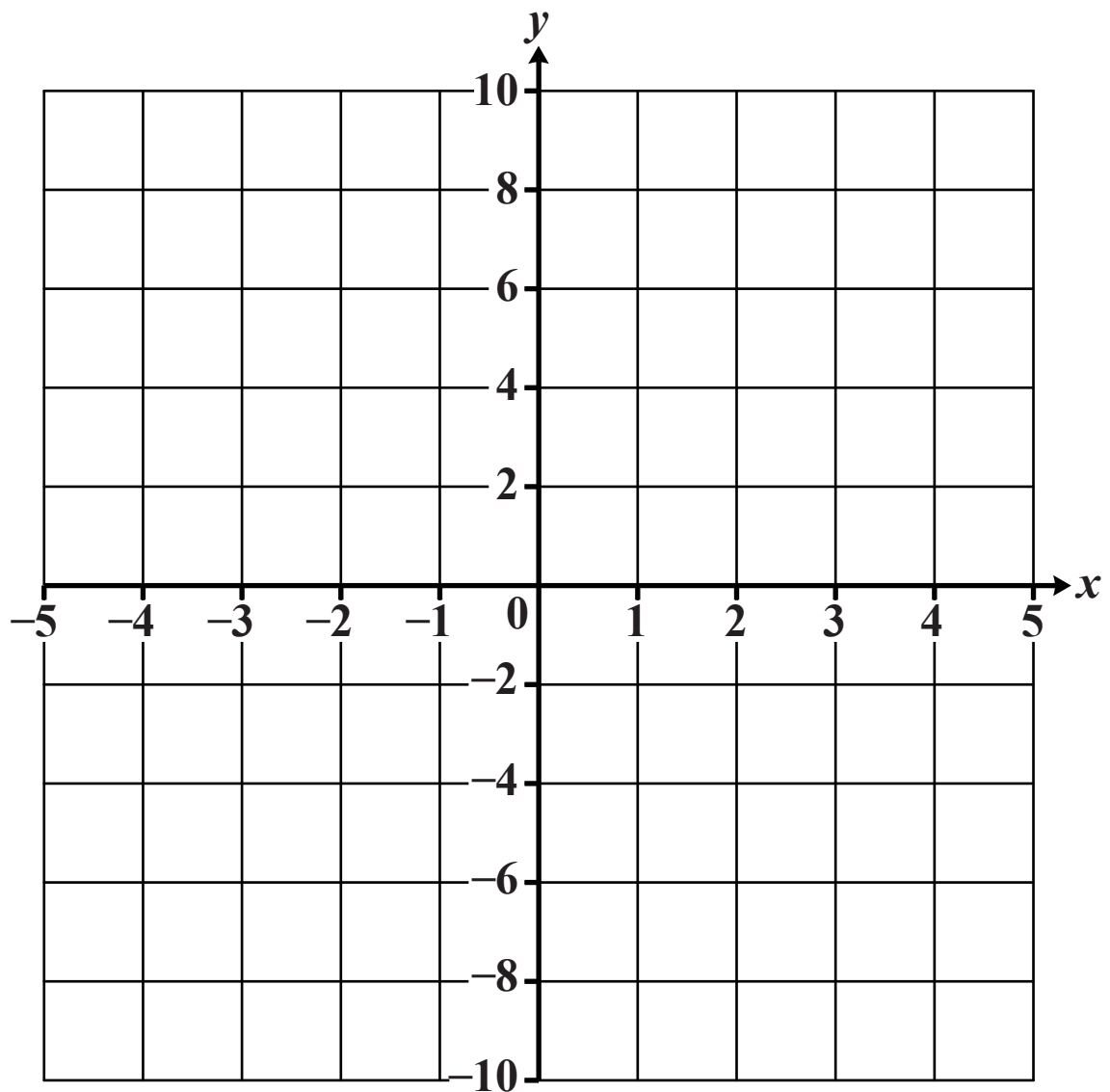
**If you do so, then you must cross through the first attempt on page 33.**





**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 9.**



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