Surname		Other Names	
Centre Number			Candidate Number									
Candidate Signature												

General Certificate of Secondary Education
November 2009

AQA

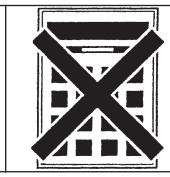
MATHEMATICS (MODULAR) (SPECIFICATION B) 43053/HB
Module 3 Higher Tier Section B

H

Friday 13 November 2009 9.50 am to 10.35 am

For this paper you must have:
- mathematical instruments.

You must **not** use a calculator.



Time allowed for Section B: 45 minutes

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. Answers written in margins or on blank pages will not be marked.
- Do all rough work in this book.
- You may **not** use your calculator in Section B. Your calculator must remain on the floor under your seat.
- When you have answered Section B you may work again on Section A but you may **not** use your calculator. It must remain on the floor under your seat.
- At the end of the examination tag Section A and Section B together with Section A on top.

Information

- The maximum mark for Section B is 35.
- The marks for questions are shown in brackets.
- You may ask for more answer paper and graph paper. These must be tagged securely to this answer book.

Advice

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

There are no questions printed on this page

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ANSWER IN THE SPACES PROVIDED

Answer **all** questions in the spaces provided.

11 Given that the value of 18^2 is 324

11 (a) (i) write down the value of 180^2

Answer ..... *(1 mark)*

11 (a) (ii) write down the value of $\sqrt{324}$

Answer ..... *(1 mark)*

11 (a) (iii) write down the value of $\sqrt{3.24}$

Answer ..... *(1 mark)*

11 (b) work out 18×36

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Answer ..... *(1 mark)*

11 (c) work out 1.8^3

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Answer ..... *(3 marks)*

12 Divide £200 in the ratio 2 : 3

.....

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.....

Answer £ ..... : £ ..... *(2 marks)*

9

13 (a) Estimate the answer to $\dfrac{8.24 + 6.89}{9.01 - 3.76}$

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Answer ..... *(2 marks)*

13 (b) What is 420 out of 600 as a percentage?

.....

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Answer .....% *(2 marks)*

13 (c) Work out $\frac{8}{9} - \frac{1}{6}$

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Answer ..... *(2 marks)*

14 (a) Work out $\dfrac{6.3 \times 10^4}{21}$

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Answer ..... *(2 marks)*

14 (b) Calculate the difference between 4.8×10^2 and 4.8×10^{-1}
Give your answer as an ordinary number.

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Answer ..... *(2 marks)*

15 (a) Express 80 as the product of prime factors.
Give your answer in index form.

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Answer ..... *(3 marks)*

15 (b) Find the least common multiple (LCM) of 80 and 50.

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Answer ..... *(2 marks)*

16 Arrange these surds in order starting with the smallest.
You **must** show your working.

$7\sqrt{2}$ $3\sqrt{8}$ $2\sqrt{32}$ $\sqrt{50}$

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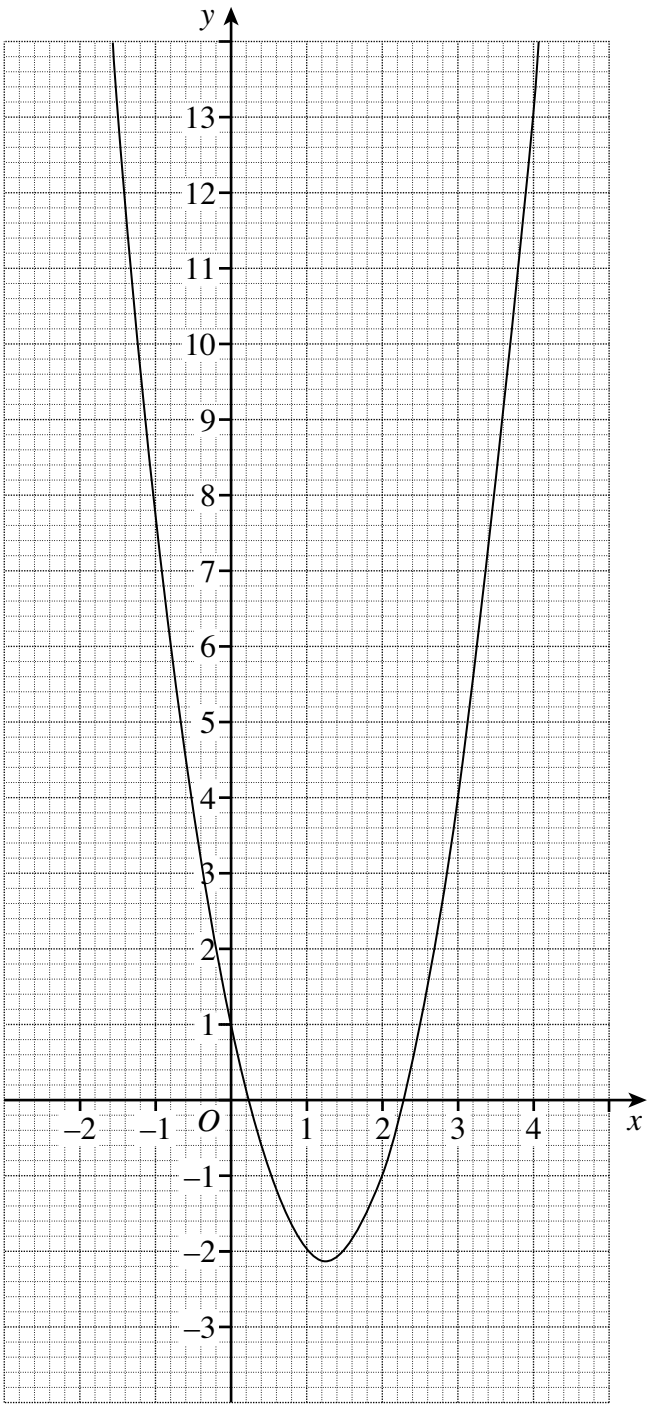
Answer ..... , ... , ... , ... *(3 marks)*

18

Turn over ▶

17 The grid shows the graph of $y = 2x^2 - 5x + 1$ for values of x from -2 to 4.



17 (a) The equation $2x^2 - 5x + 1 = k$ has exactly one solution.

Use the graph to estimate the value of k.

Answer k = ... *(1 mark)*

17 (b) By drawing a suitable straight line on the grid, find **two** solutions to the equation $2x^2 - 9x + 4 = 0$

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Answer $x =$ ..... and $x =$ ..... *(3 marks)*

18 (a) Convert $0.0\dot{4}\dot{7}$ to a fraction.

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Answer ..... *(2 marks)*

18 (b) Work out the reciprocal of the cube root of 2^{-3}
You **must** show your working.

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Answer ..... *(2 marks)*

END OF QUESTIONS

8

There are no questions printed on this page

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