| Surname | | Other Names | |
|---|---|---|---|
| Centre Number | | | | | | Candidate Number | | | | |
| Candidate Signature | | | | | | | | | | |

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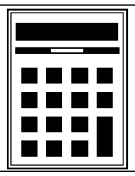
General Certificate of Secondary Education
June 2003

ASSESSMENT and QUALIFICATIONS ALLIANCE

# MATHEMATICS (MODULAR) (SPECIFICATION B) 33003/IA
# Module 3 Intermediate Tier Section A

Wednesday 25 June 2003 9.00 am to 9.40 am

**In addition to this paper you will require:**
- a calculator
- mathematical instruments
- a treasury tag.



| For Examiner's Use | | | |
|---|---|---|---|
| **Section A** | | **Section B** | |
| Pages | Mark | Pages | Mark |
| **2-3** | | **2-3** | |
| **4-5** | | **4-5** | |
| **6** | | **6-7** | |
| Total Section A | | | |
| Total Section B | | | |
| TOTAL | | | |
| Examiner's Initials | | | |

Time allowed for Section A: 40 minutes

## Instructions

- Use blue or black ink or ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions in the spaces provided.
- Do all rough work in this booklet.
- This paper is divided into **two** sections: Section A and Section B.
- After the 40 minutes allowed for Section A, you must put your calculator on the floor under your seat. You will then be given Section B.
- 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, make sure that you hand in **both** Section A and Section B securely tagged together with Section A on top.

## Information

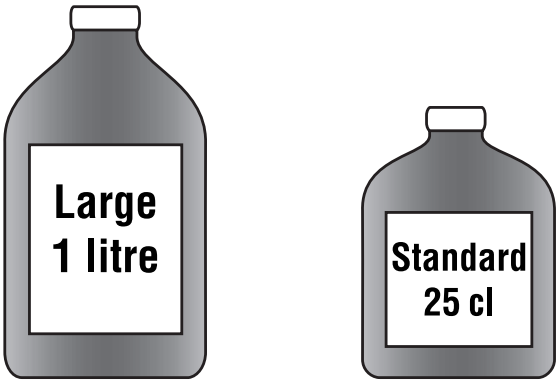
- The maximum mark for Section A is 32.
- Mark allocations are shown in brackets.
- Additional answer paper will be issued on request and must be tagged securely to this answer booklet.
- You are expected to use a calculator where appropriate.

## Advice

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

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

**1** Mineral water is sold in two sizes.




**£1.49** **59p**

Which size is the better value for money?
You **must** show all your working.

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

**2** Clive spends €1.84 buying an ice cream in Portugal.
The exchange rate is €1.60 to the £1.

Find the cost of Clive's ice cream in pounds.

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Answer £ ..... *(2 marks)*

LEAVE MARGIN BLANK

**3** The cost of a call at peak rate from Bev's mobile phone is 29p per minute.

For how long can Bev talk, at peak rate, for £10?
Give your answer in minutes and seconds.

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Answer ..... minutes ..... seconds *(4 marks)*

**4** Andrew works for 3 hours 20 minutes.
He is paid £5.40 per hour.

How much does Andrew earn?

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Answer £ ..... *(3 marks)*

**5** Use your calculator to find the value of $\frac{3.4 \times 5.9}{9.9 - 6.2}$

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

13

**6** Matt spends £48 on travel and admission to a football match.
The cost of travel and the cost of admission are in the ratio 1 : 4
The admission is the greater cost.

Find the cost of admission.

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Answer £ ..... *(2 marks)*

**7** (a) Work out $\frac{1}{0.2^2}$

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

(b) Evaluate $6^8$ giving your answer in standard form.

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

**8** Prove that the sum of three consecutive integers is divisible by three.

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*(2 marks)*

**9** A shop has a special offer.

SPECIAL OFFER

***This Week Only***

**BUY THREE ITEMS**
**AND**
**GET THE CHEAPEST ONE FREE**

(a) Ian buys the following items:

| | |
|---|---|
| A bottle of shampoo priced at | £1.75 |
| A bar of soap priced at | £1.15 |
| An aftershave spray priced at | £2.85 |

What is Ian's percentage saving using this special offer?

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

(b) The greatest possible percentage saving is when the three items are all the same price.

Calculate this percentage saving.

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

13

**10** Anne buys a printer costing £90.
This cost includes VAT at a rate of 17.5%.

How much is the VAT?

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Answer £ ..... *(3 marks)*

**11** Cobalt-60 is a radioactive substance that decays with time.
The mass of the cobalt reduces by 12% each year.

How many years will it take for 200 kg of cobalt-60 to decay to a mass of less than 120 kg?

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

**END OF SECTION A**

| Surname | | Other Names | |
|---|---|---|---|
| Centre Number | | | | | | Candidate Number | | | | |
| Candidate Signature | | | | | | | | | | |

General Certificate of Secondary Education
June 2003

ASSESSMENT and QUALIFICATIONS ALLIANCE

# MATHEMATICS (MODULAR) (SPECIFICATION B) 33003/IB
# Module 3 Intermediate Tier Section B

Wednesday 25 June 2003 9.45 am to 10.25 am

| **In addition to this paper you will require:**<br>mathematical instruments.<br>You must **not** use a calculator. |  |
|---|---|

Time allowed for Section B: 40 minutes

**Instructions**

- Use blue or black ink or ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions in the spaces provided.
- Do all rough work in this booklet.
- 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, make sure that you hand in **both** Section A and Section B securely tagged together with Section A on top.

**Information**

- The maximum mark for Section B is 32.
- Mark allocations are shown in brackets.
- Additional answer paper will be issued on request and must be tagged securely to this answer booklet.

**Advice**

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

LEAVE MARGIN BLANK

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

**12** The cost of 20 oranges is £9.

Find the cost of one orange.

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

**13** Asif has a roll of film developed.
He pays for 31 reprints.
The cost of each reprint is 49 pence.

Use suitable approximations to **estimate** how much Asif pays for these reprints.
You **must** show all your working.

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Answer £ ..... *(3 marks)*

**14** Jim buys furniture for £74.40
Delivery will cost Jim an extra 5%.

How much is the delivery charge?

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Answer £ ..... *(2 marks)*

**15** Vicky wants to buy a personal CD player.
She sees a special offer from Musical Gifts, a local shop.

***MUSICAL GIFTS***

**Personal CD Player**

***save*** $\frac{\mathbf{1}}{\mathbf{3}}$

***normal price £87***

How much does this CD player cost at Musical Gifts?

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Answer £ ..... *(3 marks)*

**TURN OVER FOR THE NEXT QUESTION**

**16** Natasha pays £200 for 150 magazines.
She sells $\frac{3}{5}$ of them for £2 each.
She sells the rest of the magazines for £1 each.

(a) How much money does she receive from selling the magazines?

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Answer £ ..... *(4 marks)*

(b) Find the percentage profit which Natasha makes on these magazines.

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

**17** (a) Work out $2\frac{4}{5} + 3\frac{2}{3}$

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

(b) Write down the value of $\sqrt[3]{27}$

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

**TURN OVER FOR THE NEXT QUESTION**

**18** (a) Express 144 as the product of its prime factors.
Write your answer in index form.

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

(b) Find the Highest Common Factor (HCF) of 60 and 144.

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

**19** (a) Work out $4 \times 10^7 \times 3 \times 10^4$

Give your answer in standard form.

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

(b) Work out $\dfrac{4 \times 10^9}{8 \times 10^5}$

Give your answer in standard form.

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

**END OF QUESTIONS**

*10*