

FOR OFFICIAL USE

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X101/102



Total
mark

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NATIONAL
QUALIFICATIONS
2008

TUESDAY, 20 MAY
1.00 PM – 1.35 PM

MATHEMATICS
INTERMEDIATE 1
Units 1, 2 and
Applications of Mathematics
Paper 1
(Non-calculator)

Fill in these boxes and read what is printed below.

Full name of centre

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Town

--

Forename(s)

--

Surname

--

Date of birth

Day Month Year

--	--	--	--	--	--

Scottish candidate number

--	--	--	--	--	--	--	--	--

Number of seat

--

- 1 **You may NOT use a calculator.**
- 2 Write your working and answers in the spaces provided. Additional space is provided at the end of this question-answer book for use if required. If you use this space, write clearly the number of the question involved.
- 3 Full credit will be given only where the solution contains appropriate working.
- 4 Before leaving the examination room you must give this book to the invigilator. If you do not you may lose all the marks for this paper.

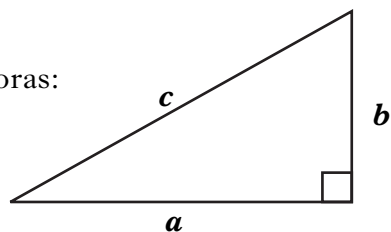
Use blue or black ink. Pencil may be used for graphs and diagrams only.



FORMULAE LIST

Circumference of a circle: $C = \pi d$
Area of a circle: $A = \pi r^2$
Curved surface area of a cylinder: $A = 2\pi rh$

Theorem of Pythagoras:



$$a^2 + b^2 = c^2$$

Marks

ALL questions should be attempted.

1. (a) Find $2.658 - 0.29$.

1

(b) Find 14×3000 .

1

(c) Find $5.45 \div 5$.

1

2. Sandra works night shift. One night she started work at 2235 and finished at 0715 the next morning.

How long did Sandra's shift last?

1

[Turn over

Marks

3. The number of salmon caught in a river over a four year period is recorded in the spreadsheet below.

	A	B	C	D	E	F
1		2004	2005	2006	2007	
2	MAY	15	3	0	0	
3	JUNE	139	109	171	234	
4	JULY	267	225	216	276	
5	AUGUST	159	103	72	48	
6	SEPTEMBER	41	13	21	1	
7						

- (a) The result of the formula = SUM(E2..E6) is to be entered in cell E7.
What would appear in cell E7?

1

- (b) What formula would be used to enter the average number of fish caught in June over the four year period in cell F3?

1

4. A plumber charges £20 for being called out to a job, plus £12 **for each 15 minutes** he takes to do the job.

How much does he charge for a job which takes 2 hours?

2

Marks

5. A building company employs 70 staff.

The number of staff absences during the last year is shown in the frequency table below.

Number of Absences (Days)	Frequency
0	7
1	21
2	18
3	11
4	8
5	5
Total	70

- (a) Find the probability of choosing a member of staff who had no absences.

1

- (b) Complete the table below **and** calculate the mean number of absences.

Number of Absences (Days)	Frequency	Number of Absences × Frequency
0	7	0
1	21	21
2	18	36
3	11	
4	8	
5	5	
Total	70	

3

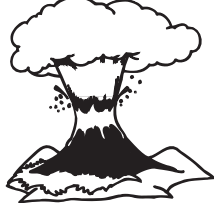
6. Frances is on holiday. She wants to book some of the excursions shown in the advert below.

EXCURSIONS

Pirate Cruise
£40



Volcano Trip
£35



Parrots and Dolphins
£25



Dinner and Cabaret
£55



Caves and Grottos
£30



Reps' Show
£20



(or **free** when you
spend £110 or more
on **three** excursions)

- Frances wants to book **four** different excursions.
- She can afford to spend a **maximum of £120**.
- She gets a **free** ticket for the Reps' Show when she spends £110 or more on **three** excursions.

Marks

6. (continued)

Two combinations of **four** excursions that Frances can afford are shown in the table below.

Dinner and Cabaret £55	55						
Pirate Cruise £40		40					
Volcano Trip £35		35					
Caves and Grottos £30	30						
Parrots and Dolphins £25	25	25					
Reps' Show £20 or Free	Free	20					
Total Price	£110	£120					

Complete the table to show **all** possible combinations that Frances can afford.

3

[Turn over

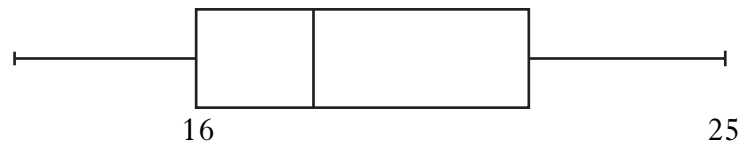
Marks

7. A child health survey monitors the ages at which young children can build a tower of four wooden blocks.

The ages (in months) of a group of children are shown below.

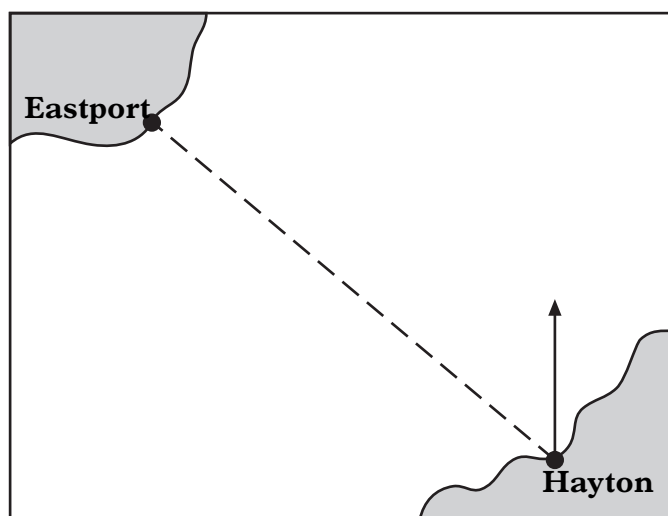
23 16 14 20 18 17 16 20 17 19 13 25 24

Complete the boxplot, drawn below, to show this information.



4

8. The scale drawing shows the route taken by a ferry from Hayton to Eastport.

Marks

Scale: 1 cm to 250 m

Use the scale drawing to find the distance and bearing of Eastport from Hayton.

4

[Turn over for Questions 9 and 10 on *Page ten*

Marks

9. Evaluate $x^2 - y$ when $x = -8$ and $y = 73$.

3

10. Jamie invests £1440 in a savings account.
The rate of interest is 5% per annum.
Calculate the interest he should receive after 3 months.

4

[END OF QUESTION PAPER]



ADDITIONAL SPACE FOR ANSWERS



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