FOR OFFICIAL USE

X100/101

Total mark

NATIONAL QUALIFICATIONS 2008

TUESDAY, 20 MAY
1.00 PM – 1.35 PM

MATHEMATICS
INTERMEDIATE 1
Units 1, 2 and 3
Paper 1
(Non-calculator)

Fill in these boxes and read what is printed below.

Full name of centre

Town

Forename(s)

Surname

Date of birth

Day		Month		Year	

Scottish candidate number

Number of seat

1 **You may <u>NOT</u> 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.

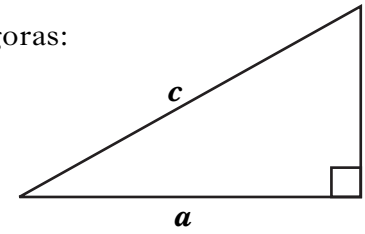
SQA ©

FORMULAE LIST

Circumference of a circle: $C = \pi d$

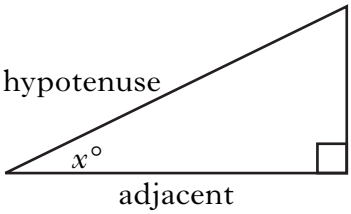
Area of a circle: $A = \pi r^2$

Theorem of Pythagoras:



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

Trigonometric ratios in a right angled triangle:



$$\tan x^\circ = \frac{\text{opposite}}{\text{adjacent}}$$

$$\sin x^\circ = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos x^\circ = \frac{\text{adjacent}}{\text{hypotenuse}}$$

DO NOT WRITE IN THIS MARGIN

Marks

ALL questions should be attempted.

1. (*a*) Find 2·685 – 0·29.

1

(*b*) Find 14 × 3000.

1

(*c*) Find 5·45 ÷ 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 diameter of a red blood cell is $6{\cdot}5 \times 10^{-3}$ millimetres.
Write this number in full.

2

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

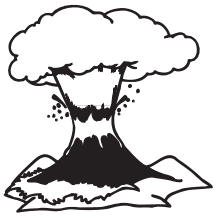
6. Frances is on holiday. She wants to book some of the excursions shown in the advert below.

EXCURSIONS

Pirate Cruise
£40

Dinner and Cabaret
£55

Volcano Trip
£35



Parrots and Dolphins
£25

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

7. Solve algebraically the equation

$$7\,m - 8 = 40 + m.$$

3

[Turn over

Marks

8. (*a*) Complete the table below for $y = 2{\cdot}5x - 3$.

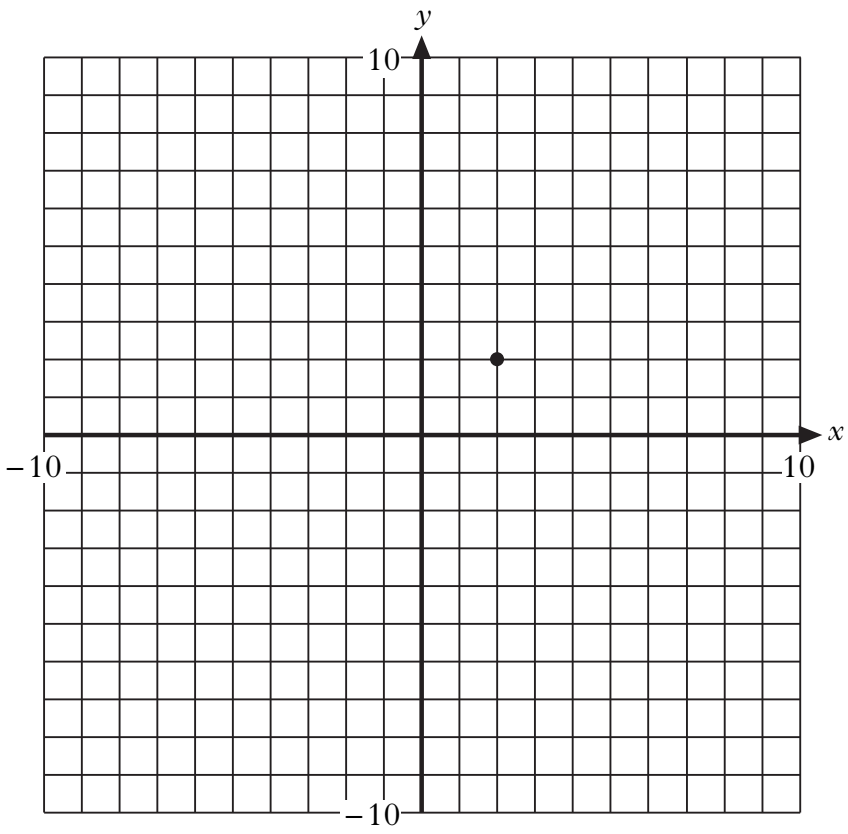
x	-2	0	2	4
y			2	

2

(*b*) Draw these **two** lines on the grid:

(i) $y = 2{\cdot}5x - 3$;

(ii) $y = 3$. **3**



DO NOT WRITE IN THIS MARGIN

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*]

DO NOT WRITE IN THIS MARGIN

ADDITIONAL SPACE FOR ANSWERS

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