Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Question	Mark
1	
2	
3	
4	
TOTAL	

Certificate in Use of Mathematics
Foundation Level

Use of Mathematics Core

43503F

Specimen Question Paper

For this paper you must have:
- a clean copy of the Data Sheet (enclosed)
- a ruler
- a calculator.

Time allowed
- 1 hour 15 minutes

Instructions
- Use black ink or black ball-point pen. Pencil should only be used for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page.
- Do all rough work in this book. Cross through any work that you do not want to be marked.
- You may **not** refer to the copy of the Data Sheet that was available prior to this examination. A clean copy is enclosed for your use.

Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 50.
- You are expected to use a calculator where appropriate.

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

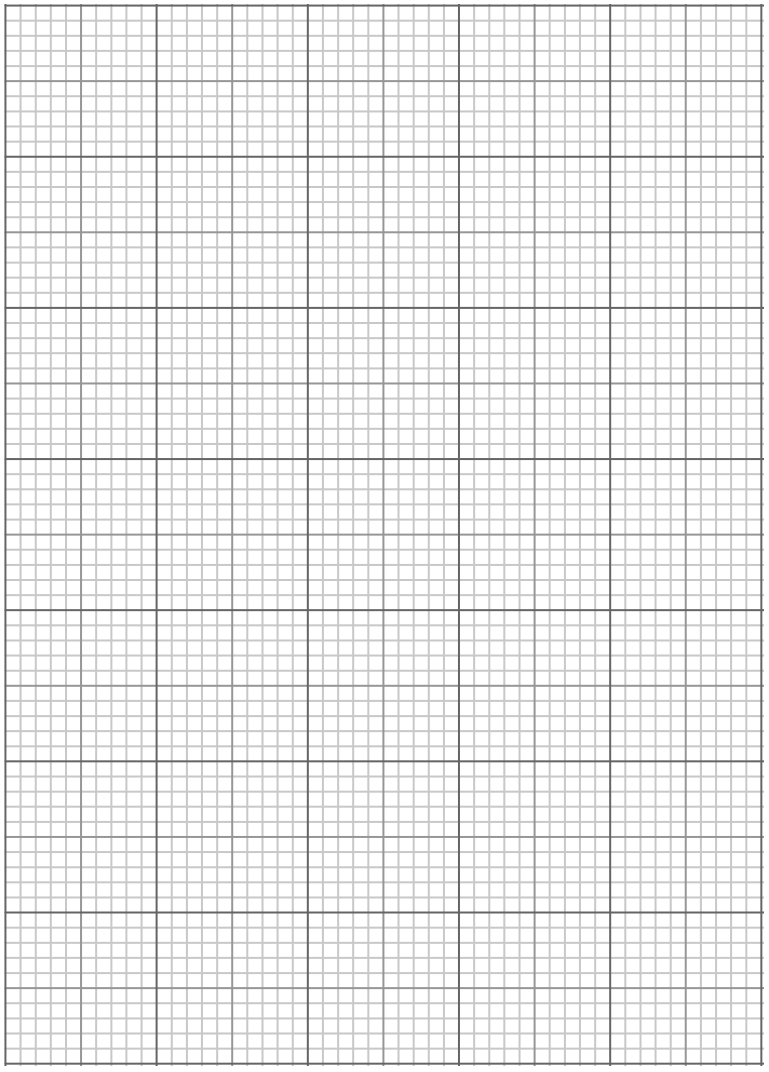
Section A

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

Use **High definition televisions** *on page 2 of the Data Sheet.*

1 (a) (i) Plot on the grid below the data pairs showing, for the screen heights given, the non-HD diagonal screen size and the HT diagonal screen size.

HD Television diagonal size (inches



Non HD Television diagonal size (inches)

(3 marks)

1 (a) (ii) Explain how you can tell that the diagonal sizes for a 'non-HD' television and a HD television are in direct proportion.

……..

……..

(1 mark)

1 (a) (iii) Draw the line of best fit through these points.
Use your line of best fit to estimate the diagonal size of an HD television which has the same screen height as a non-HD television of size 37 inches.

……..

(2 marks)

1 (b) For the 32 inch television shown on the data sheet:

1 (b) (ii) find the total area of the 'non-HD' television screen;

……..

……..

(2 marks)

1 (b) (ii) find the total area of the HD television screen;

……..

……..

(2 marks)

1 (b) (iii) find the decrease in area.

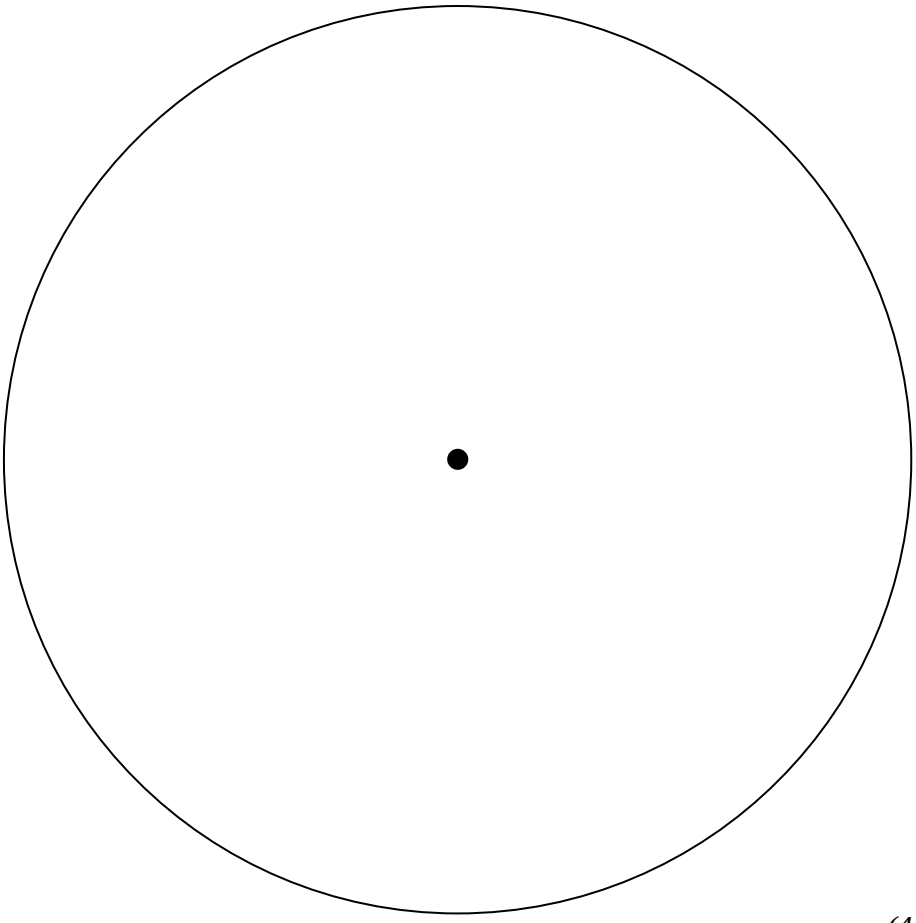
……..

……..

(1 mark)

1 (c) A shop sells 40 televisions.
These are:
10 small non-HD televisions;
6 HD televisions over 32 inches in size;
3 Plasma televisions
and 21 HD televisions 32 inches or under in size.

Complete the pie chart below to show the above data.



(4 marks)

Space for working

……

……

……

……

……

……

……

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Section B

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

Use **Flights: London - Lisbon** *on pages 3 and 4 of the Data Sheet.*

2 (a) Write down the outward/return dates which will give the cheapest flights of those shown.

……..

(1 mark)

2 (b) (i) On the chosen day of travel Liz, wants to fly from London Heathrow (LHR) and does not want a flight taking off before 10 am.
What is the price of the cheapest outward flight taking off from Heathrow after 10 am?

……..

(1 mark)

2 (b) (ii) For this flight, calculate the length of time that this flight from London to Lisbon will take.
The time in Lisbon, Portugal is the same as the time in London.

……...……...……...…

(2 marks)

2 (c) If Liz had wanted to fly from London Gatwick, which flight would she have used?

.....

(1 mark)

2 (d) Ben buys a return ticket costing £140.30. Taxes are 51.9% of this cost.

Calculate the taxes paid.

.....

.....

(2 marks)

2 (e) Chloe waits for a sale before buying her ticket. In the sale, all the prices are reduced by $\frac{1}{6}$.

Calculate the amount she is charged for a flight which normally costs £200.40.

.....

.....

(3 marks)

10

Section C

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

Use **Chess grading** *on page 5 of the Data Sheet.*

3 (a) After 10 games in the 'Match of the 20th Century', Bobby Fischer's results were as shown below.

3 (a) (i) Complete the table.

Played	Won	Drawn	Lost	Points
10	5	3	2	

(1 mark)

3 (a) (ii) Calculate Fischer's percentage score.

.....

(1 mark)

3 (b) The grades of two British Grandmasters in the 2008 grading list are as shown:

Michael Adams	272
Nigel Short	262

3 (b) (i) According to these grades, show that Adams might be expected to score 60% in a match with Short

.....

.....

(1 mark)

3 (b) (ii) Describe two ways that a player could score 60% in a match of 5 games.

.....

and.....

(2 marks)

3 (c) (i) In 2008, a player had an 'old' grade of 120
What 'new' grade would correspond to this?

.....

.....

(1 mark)

3 (c) (ii) Another player has a 'new' grade of 131.
What 'old' grade would correspond to this?

.....

.....

(2 marks)

3 (d) (i) Solve the equation

$$x = 0.8\,x + 43$$

.....

.....

(2 marks)

3 (d) (ii) Explain the meaning of your solution in the context of chess grading.

.....

.....

(1 mark)

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Section D

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

Use **Silbury Hill** *on page 6 of the Data Sheet.*

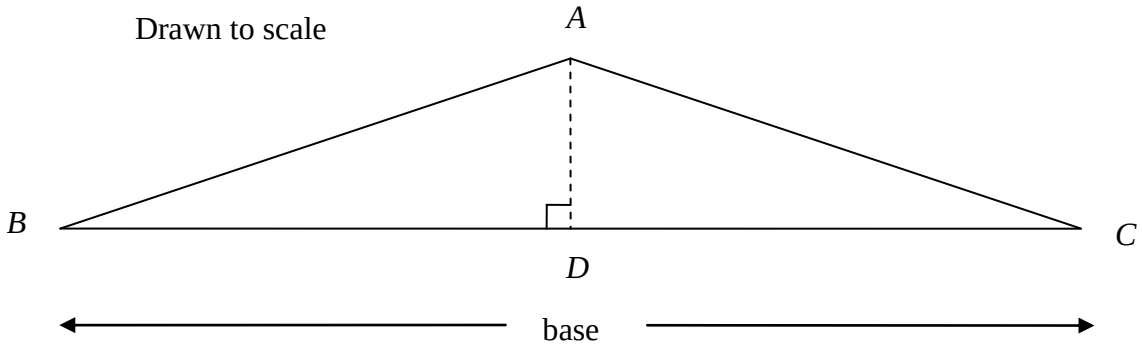
4 (a) What is the circumference around the base of Silbury Hill?

.....

.....

(2 marks)

4 (b) The surface area of Silbury Hill is the same as the area of triangle ABC.
Triangle ABC is shown below to a scale of 1:4000 .



4 (b) (i) Measure the length *AD* on the diagram above.

.....

(1 mark)

4 (b) (ii) Calculate the actual length of *AD*.

.....

(2 marks)

4 (b) (iii) Measure the length *BC* the diagram above.

.....

(1 mark)

4 (b) (iv) Calculate the actual length of *BC*.

.....

(1 mark)

4 (b) (v) Hence calculate the surface area of Silbury Hill.

.....

.....

.....

(4 marks)

4 (c) A mathematician correctly calculates the volume of Silbury Hill to be approximately 290 000 m^3.

Why is this answer greater than the 250 000 m^3 given on the data sheet?

.....

.....

(2 marks)

4 (d) You may assume that approximately 500 men worked on Silbury Hill during each day that it was being constructed.

Estimate how many cubic metres of earth and chalk were moved and shaped by each man.

.....

.....

(1 mark)

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END OF QUESTIONS