

GENERAL CERTIFICATE OF SECONDARY EDUCATION

MATHEMATICS B (MEI)

B262B

Paper 2 Section B
(Foundation Tier)

Wednesday 14 January 2009

Afternoon

Duration: 1 hour

Candidates answer on the question paper

OCR Supplied Materials:

None

Other Materials Required:

- Geometrical instruments
- Scientific or graphical calculator
- Tracing paper (optional)



Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Show your working. Marks may be given for a correct method even if the answer is incorrect.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.

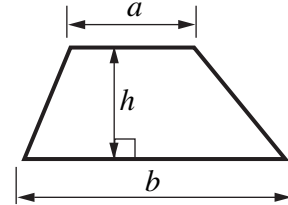
INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- Section B starts with question 13.
- You are expected to use a calculator for this section of the paper.
- Use the π button on your calculator or take π to be 3.142 unless the question says otherwise.
- The total number of marks for this Section is **50**.
- This document consists of **12** pages. Any blank pages are indicated.

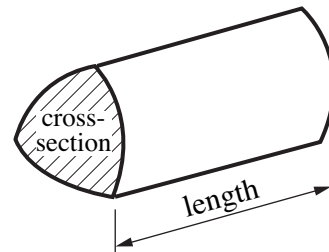
FOR EXAMINER'S USE	
SECTION B	

Formulae Sheet: Foundation Tier

$$\text{Area of trapezium} = \frac{1}{2} (a + b)h$$



$$\text{Volume of prism} = (\text{area of cross-section}) \times \text{length}$$



PLEASE DO NOT WRITE ON THIS PAGE

- 13 (a) A farmer has 247 apples.
A tray can hold 36 apples.

How many of these trays can he fill completely?

(a) [2]

- (b) A tin of paint holds enough paint to cover 25 m^2 of wall.

How many of these tins are needed to paint 80 m^2 of wall with 2 coats of paint?

(b) [2]

- (c) This rule can be used to calculate a gas bill in pence.

Multiply the number of units by 9.57 and then add 850.

Calculate the bill when 219 units of gas have been used.
Give your answer to an appropriate degree of accuracy.

(c) £..... [3]

14 Some students are trying to describe **four-sided** shapes.

(a) Claire says

My shape has right angles at each corner.

Name two shapes that Claire could be describing.

(a)

..... [2]

(b) Tariq wants to describe a rhombus.

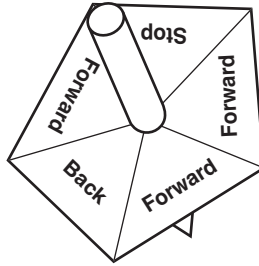
What should he say?

My shape has [1]

(c) Sonia says

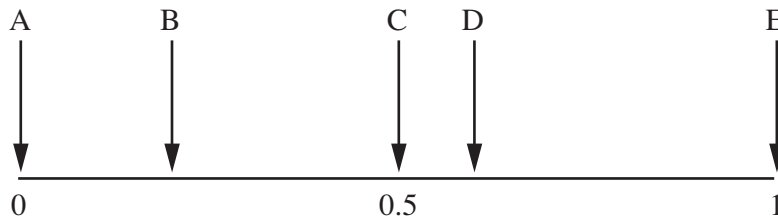
My shape has just one line of symmetry.

Draw a sketch of a four-sided shape with just one line of symmetry. [1]



This is a fair five-sided spinner used in a game.
It is spun once.

The probability scale has arrows representing different outcomes.



(a) Match an arrow to each of these outcomes.

(i) Forward

(a)(i) Arrow [1]

(ii) Back

(ii) Arrow [1]

(iii) Sideways

(iii) Arrow [1]

(b) On the probability scale, draw an arrow to show the probability of **not** getting “Stop”. [1]



29 adults and 7 children went on the trip.

(a) How much money was paid altogether?

(a) £..... [1]

It cost £135 to hire the coach and £2.49 for each picnic lunch.

(b) How much profit did the trip make?
Show your working clearly.

(b) £ [3]

- 17 (a) Ellie gets 17 out of 30 in a test.

Change this mark into a percentage, correct to 1 decimal place.

(a)% [2]

- (b) A swimsuit costs £24 before VAT is added.
VAT is charged at $17\frac{1}{2}\%$.

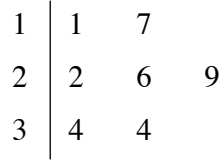
Calculate the VAT on this swimsuit.

(b) £ [2]

18 Elijah and Simone each have a website.

(a) Elijah recorded how many times his website was visited during one week.

Stem and leaf diagram showing number of daily visits to Elijah’s website.



3 | 4 means 34 visits

From Elijah’s data, work out

(i) the range,

(a)(i) [1]

(ii) the median.

(ii) [1]

(b) In the same week, Simone’s website has daily visits with range 48, and median 8.

Make two comparisons between the number of daily visits to Elijah’s website and Simone’s website.

1 [1]

2 [1]

- (c) Simone says that using these results is not a good way to see whose website is visited by the most people.

Give a reason to support her view.

.....
.....
..... [1]

- 19 Here is a list of ingredients for crumble for 6 people.

200 g plain flour
150 g soft brown sugar
75 g butter
1 teaspoon baking powder

- (a) Katie is making crumble for 15 people.

How much soft brown sugar will she need?

(a) g [2]

- (b) Sanjay has plenty of the other ingredients but only 125 g of butter.

What is the largest number of people he can make crumble for?

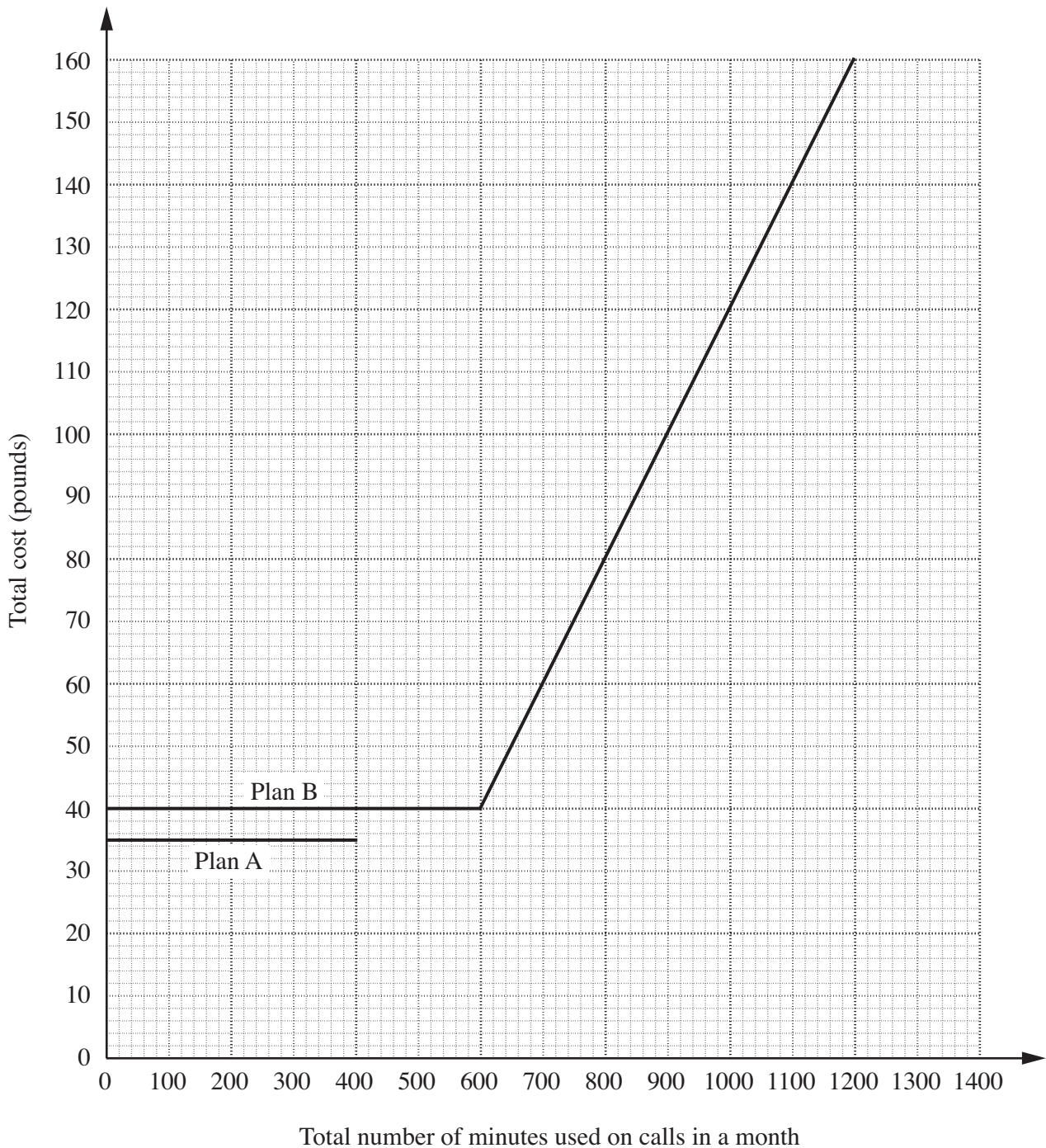
(b) [2]

20 A mobile phone company offers their customers the choice of two payment plans.

	Plan A	Plan B
Monthly fee	£35	£ F
Amount of free talk time per month	400 minutes	600 minutes
Charge for each minute more than the free talk time	15p	20p

The total costs are to be shown on a graph.

The graph for Plan B has been completed together with part of the graph for Plan A.



(a) Write down the monthly fee for Plan B (£ F).

(a) £..... [1]

(b) Alice uses payment Plan A.

How much does it cost her if she uses her phone for a total of 1000 minutes in a month?

(b) £ [1]

(c) Draw a line on the graph to show the total cost for Plan A from 400 to 1200 minutes. [2]

(d) How many minutes in a month cost the same using the two plans?

(d) minutes or minutes [2]

(e) Jeremy used 800 minutes in one month.

Which plan is cheaper for Jeremy, and by how much?

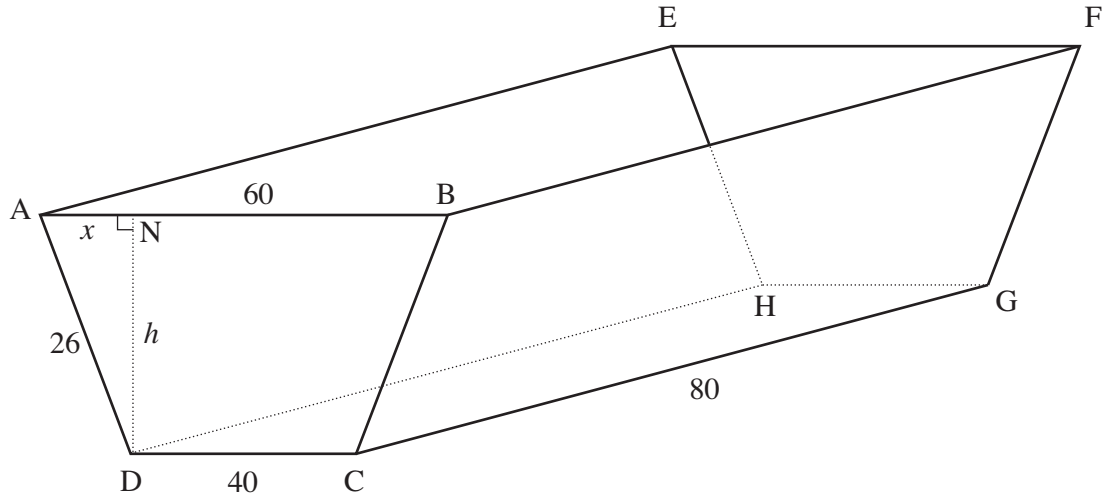
(e) Plan by £ [2]

21 Solve this equation.

$$\frac{x}{3} + 13 = 25$$

..... [2]

TURN OVER FOR QUESTION 22



The diagram shows a planter.

It is in the shape of a prism with an isosceles trapezium as its cross-section.

$AB = 60\text{ cm}$, $DC = 40\text{ cm}$, $AD = BC = 26\text{ cm}$ and $CG = 80\text{ cm}$.

$AN = x\text{ cm}$ and $DN = h\text{ cm}$.

Angle $AND = 90^\circ$.

(a) Show that $x = 10$.

.....
 [1]

(b) Find the height, $h\text{ cm}$, of the trapezium.

(b)cm [3]

(c) Find the volume of the planter.
 Give the units of your answer.

(c) [4]