

**GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS C (GRADUATED ASSESSMENT)
MODULE M3 – SECTION B**

M3

TUESDAY 11 MARCH 2008

Morning
Time: 30 minutes

Candidates answer on the question paper
Additional materials (enclosed): None

Additional materials (required):
Geometrical instruments
Tracing paper (optional)
Electronic calculator



Candidate
Forename

Candidate
Surname

Centre
Number

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Candidate
Number

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INSTRUCTIONS TO CANDIDATES

- Write your name in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use blue or 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.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this Section is **25**.
- Section B starts with question 8.
- You are expected to use a calculator in Section B of this paper.

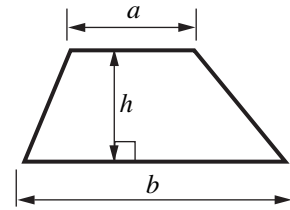
FOR EXAMINER'S USE

SECTION B

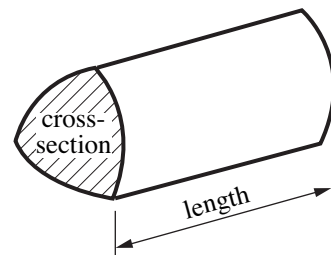
This document consists of **10** printed pages and **2** blank pages.

Formulae Sheet

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



Volume of prism = (area of cross-section) \times length



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8 Calculate.

(a) The square of 16

(a) [1]

(b) $\sqrt{400}$

(b) [1]

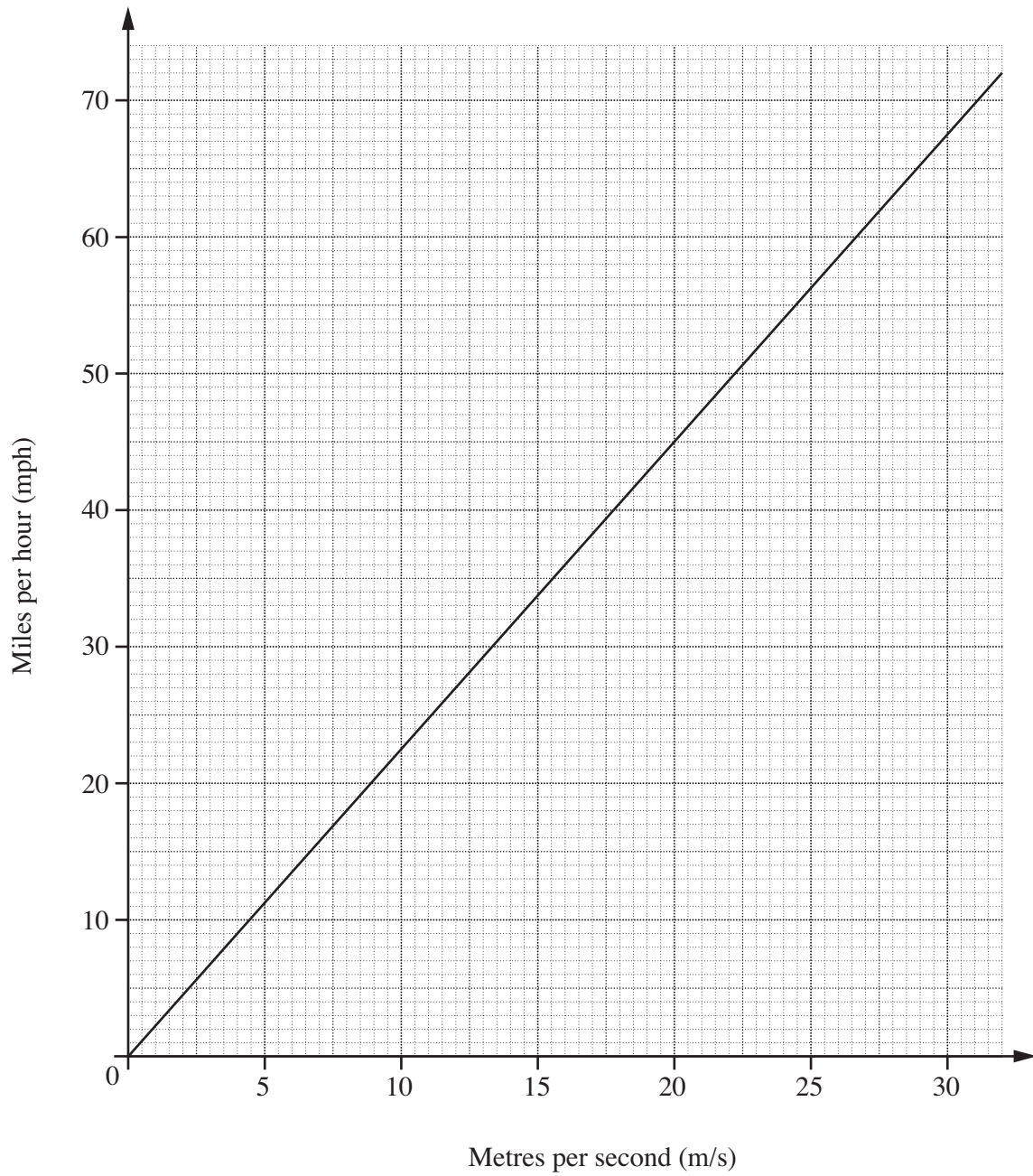
(c) $2 \cdot 5^2$

(c) [1]

(d) $\frac{1}{7}$ of 84

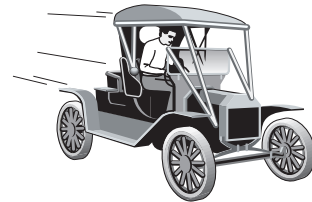
(d) [1]

- 9 (a) Use this conversion graph to answer the questions below.



- (i) In 1898 the world land speed record was 40 mph.

What is 40 mph in m/s?



(a)(i) m/s [1]

(ii) The world land speed record for a blind driver is 200 mph.

What is 200 mph in m/s?
Show your working.

(ii) m/s [2]

(iii) A top sprinter can reach a speed of 10 m/s.

What is 10 m/s in mph?

(iii) mph [1]

(b) Record car speed attempts are calculated by timing the car over a distance of one mile.
The time, t seconds, is put into the formula

$$v = 3600 \div t$$

to give the car's speed, v mph.

The supersonic car Thrust SSC took 4.7 seconds to cover a mile.

Use the formula to calculate its speed.

(b) mph [2]

Question 9 continued

(c)



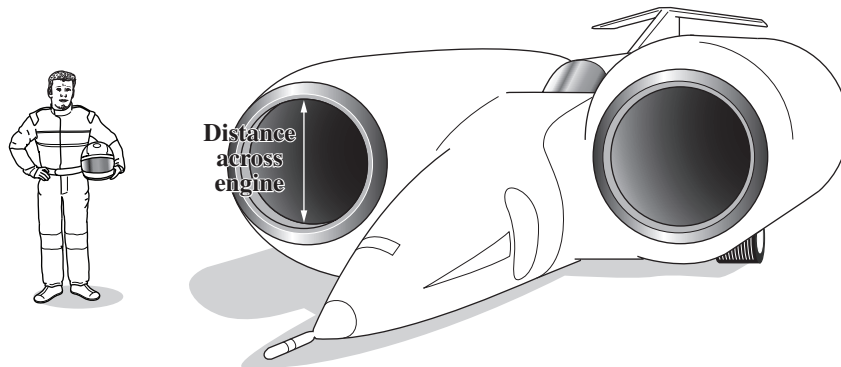
© Louise Ann Noeth 2002
Landspeed Productions

On run 65 the speed of Thrust SSC was 759.333 mph.
On the next run it was 766.609 mph.

Calculate the mean of 759.333 and 766.609.

(c) [2]

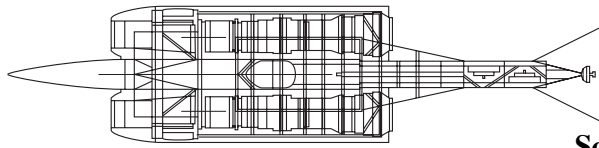
(d) This is a picture of Thrust SSC.



Roughly how many metres is the distance across one of its engines?

(d) [1]

(e) Here is a scale drawing of Thrust SSC.



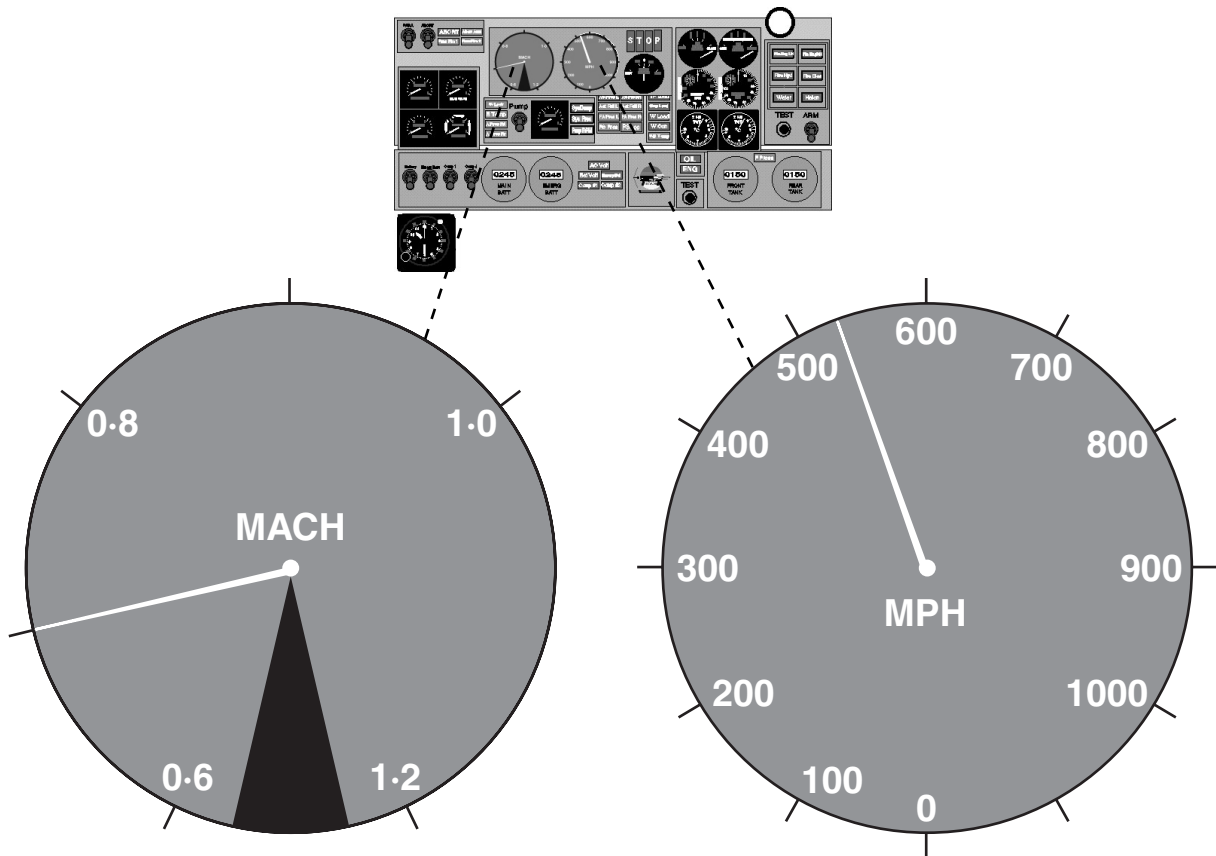
Scale: 1 cm represents 2 m

What is the real length of Thrust SSC?
Give the units of your answer.

(e) [3]

(f) Here is the control panel of Thrust SSC.

Estimate the readings on the two scales shown.



(f)(i) Mach

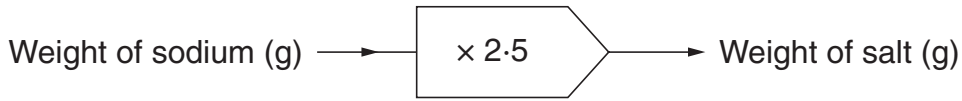
(ii) mph

[1]

[1]

10 Safiq is doing a project on labels on food cans.

- (a) Some food labels give the weight of sodium rather than salt.
This number machine converts weight of sodium into weight of salt.



One brand of baked beans contains 2 g of sodium in a serving.
Use the number machine to convert 2 g of sodium into grams of salt.

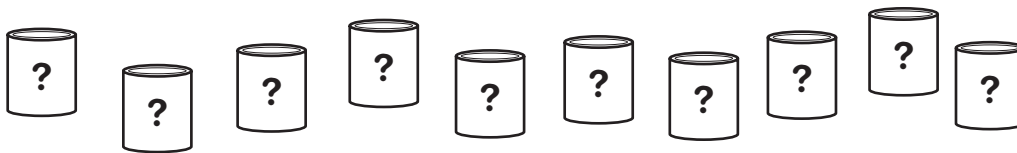
(a) g [2]

- (b) How many kilograms is 420 g?



(b) kg [1]

- (c) Safiq took the labels off 10 cans to use in his project.
All the ten cans now look the same.



3 of the cans contain baked beans.
1 of the cans contains custard.
4 of the cans contain fruit.
2 of the cans contain peas.

Safiq picks up one of these cans.

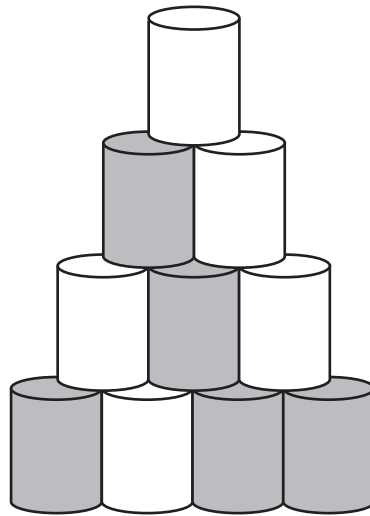
What is the probability that this can contains

- (i) baked beans, (c)(i) [1]

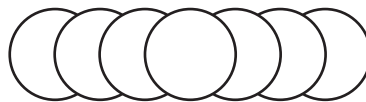
- (ii) cat food? (ii) [1]

- (d) Safiq's younger sister coloured 5 of the cans with black felt tip. She stacked the cans.

This is the view from the front.

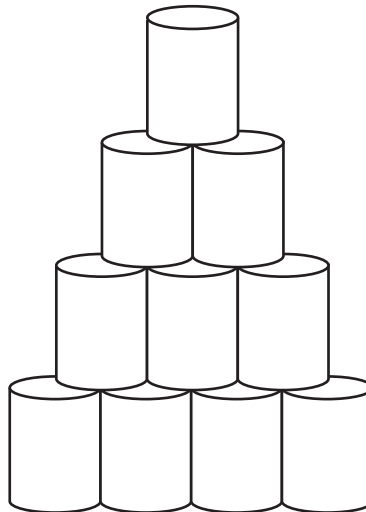


- (i) Use shading to complete this view looking down on the cans.



- (ii) Shade in 5 cans to give the view from the back.

[1]



[1]

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