

**GENERAL CERTIFICATE OF SECONDARY EDUCATION**  
**MATHEMATICS C (GRADUATED ASSESSMENT)**  
MODULE M1 (SECTION A)

## B271A

Candidates answer on the Question Paper

**OCR Supplied Materials:**  
None

**Other Materials Required:**

- Geometrical instruments
- Tracing paper (optional)

**Monday 21 June 2010**  
**Afternoon**

**Duration: 30 minutes**



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. Additional paper may be used if necessary but you must clearly show your Candidate Number, Centre Number and question number(s).

**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**.
- This document consists of **12** pages. Any blank pages are indicated.

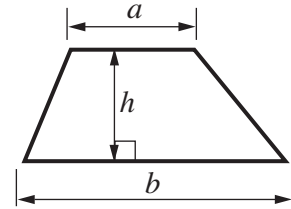
**WARNING**



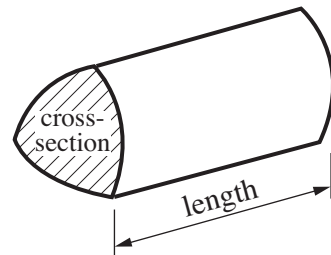
No calculator can be used for Section A of this paper

## Formulae Sheet

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



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



**PLEASE DO NOT WRITE ON THIS PAGE**

- 1 (a) Here are the lengths of some supertankers.

Supertanker name	Length (m)
Adna	325
Soro	332
Tokio	333
Torm Venture	229
Ural	330
Victoria	326
Yoho	337



- (i) Which is the longest of these supertankers?

(a)(i) ..... [1]

- (ii) Which supertanker is 4 m longer than the *Victoria*?

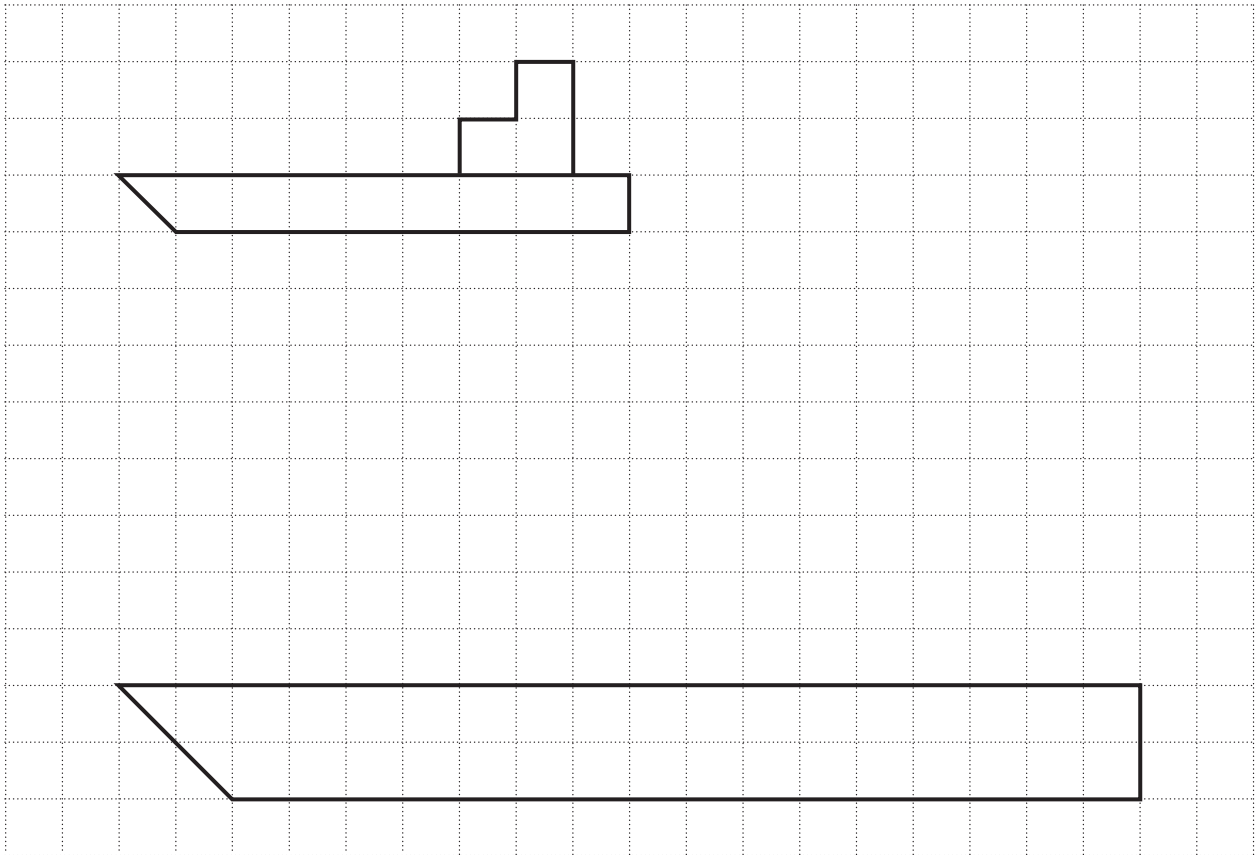
(ii) ..... [1]

- (b) Another supertanker, the *Knock Nevis*, is 1504 feet long.

Write 1504 in words.

..... [1]

- (c) Complete the enlargement of the tanker logo below.  
The scale factor is 2.



[3]

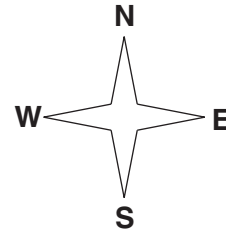
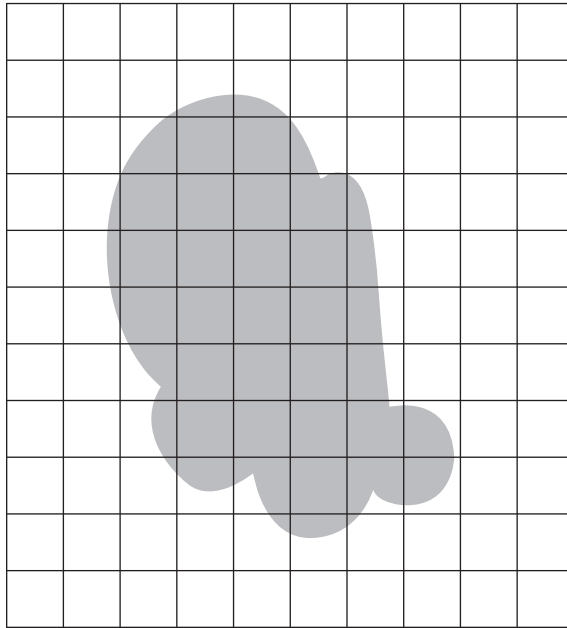
- (d) Sometimes oil spills from supertankers, making an oil slick.  
Some oil slicks are over 2 cm thick.

What is 2 cm in mm?



(d) ..... mm [1]

- (e) Here is a satellite image of a large oil slick.  
The slick is the shaded region.



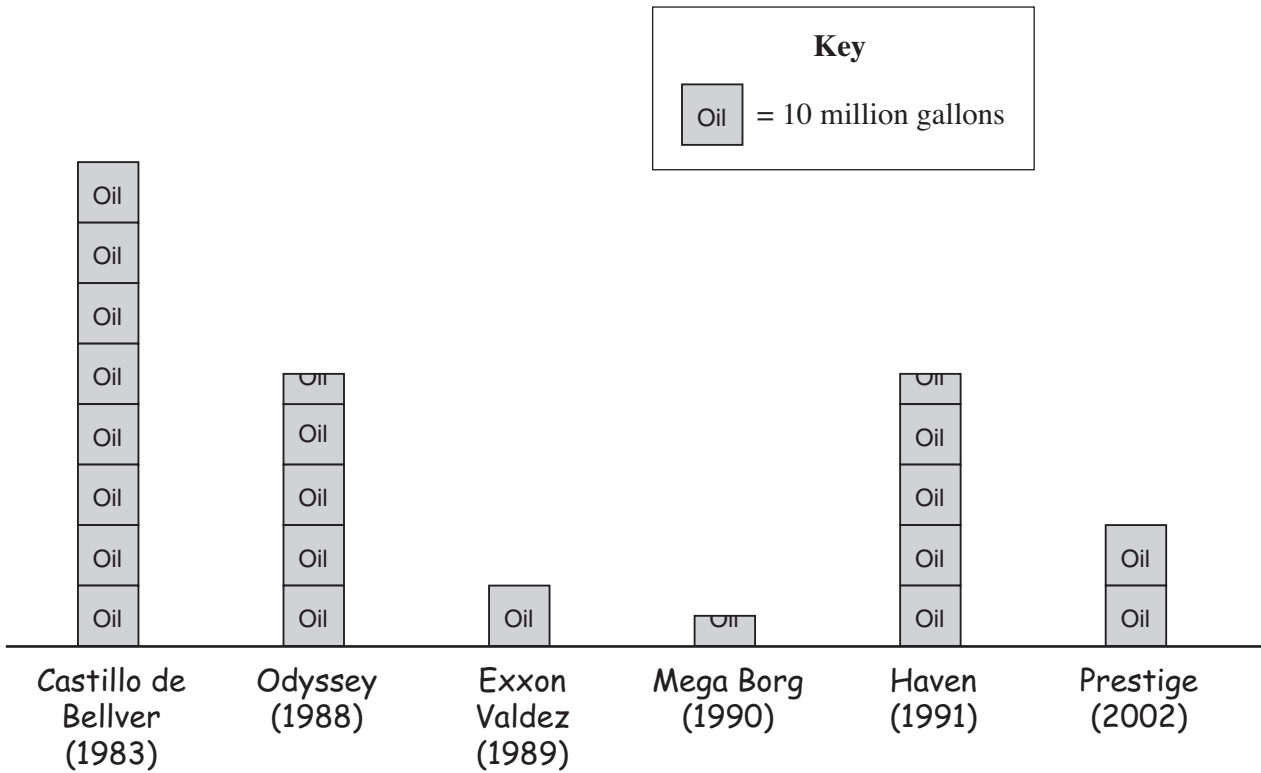
- (i) Each square has an area of one square kilometre.  
Estimate the area of the oil slick.

(e)(i) .....square kilometres [2]

- (ii) The wind is blowing the slick towards the South East.  
Draw an arrow on the grid to show this direction.

[1]

(f) This pictogram shows information about some of the worst oil spills.



Use the pictogram to complete these sentences with the correct numbers.

The biggest spill was ..... million gallons of oil in 1983.

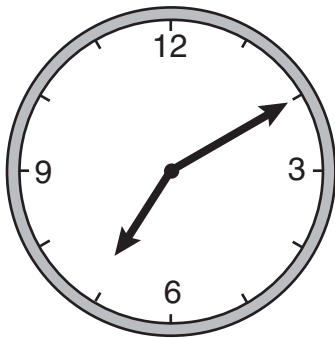
In 1990 the Mega Borg spilled ..... million gallons of oil.

[2]

- (g) Amy wants to listen to a radio programme about the Torrey Canyon.  
This was the first really bad supertanker oil spill.

Time	Programme
7:00	National News
7:20	Local News
7:35	The Torrey Canyon Disaster 1967
8:05	Uptown Girls
9:00	Eat till you burst

Here is the time on Amy's clock.



- (i) How long is it before the programme about the Torrey Canyon begins?

(g)(i) .....minutes [1]

- (ii) How long does the programme about the Torrey Canyon last?

(ii) .....minutes [1]

2 Find the missing numbers.

(a)  $3 + ? = 7$

(a) ..... [1]

(b)  $2 \times ? = 10$

(b) ..... [1]

(c)  $? - 2 = 6$

(c) ..... [1]

3 (a) Find an even number greater than 10 that 5 divides into exactly.

(a) ..... [1]

(b) Find an odd number greater than 7 that 5 divides into exactly.

(b) ..... [1]



4 Work out.

(a)  $7 \times 4$

(a) ..... [1]

(b)  $40 \div 8$

(b) ..... [1]

(c)  $\frac{1}{2}$  of £12

(c) £ ..... [1]

**TURN OVER FOR QUESTION 5**

- 5 In a TV game people pick a box.  
They do not know what is in the box.  
They win what is in the box.

One box has already been opened.  
Here are the prizes that are left.

£10 000

£5000

£1000

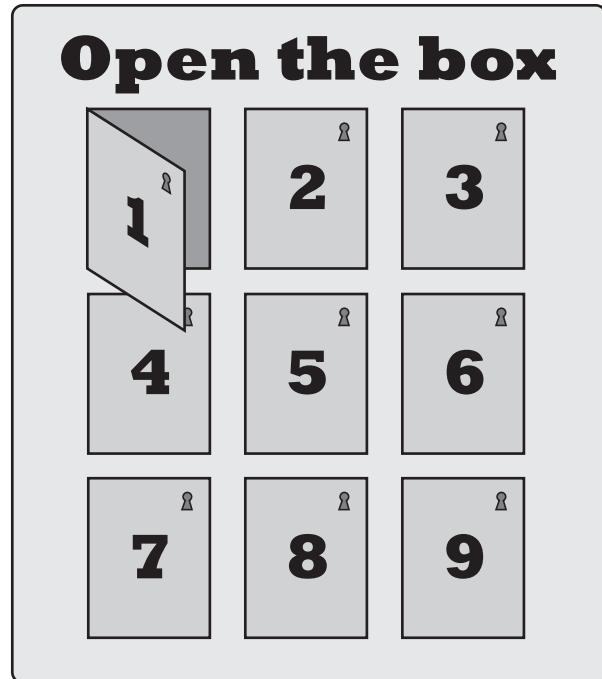
£100

A bar of soap

An empty can

A used bus ticket

A banana skin



Santos picks one of the eight closed boxes.

Choose the best word from the list below to complete each of the sentences.

certain	likely	evens
unlikely	impossible	

- (a) It is ..... that Santos picks a money prize. [1]
- (b) It is ..... that Santos picks the £10 000 prize. [1]
- (c) It is ..... that Santos picks a prize of a holiday to China. [1]

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**GENERAL CERTIFICATE OF SECONDARY EDUCATION  
MATHEMATICS C (GRADUATED ASSESSMENT)  
MODULE M1 (SECTION B)**

## B271B

Candidates answer on the Question Paper

**OCR Supplied Materials:**  
None

- Other Materials Required:**
- Geometrical instruments
  - Tracing paper (optional)
  - Electronic calculator

**Monday 21 June 2010  
Afternoon**

**Duration: 30 minutes**



Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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**INSTRUCTIONS TO CANDIDATES**

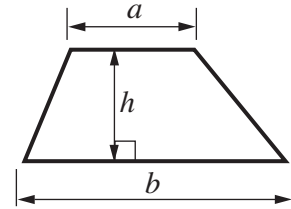
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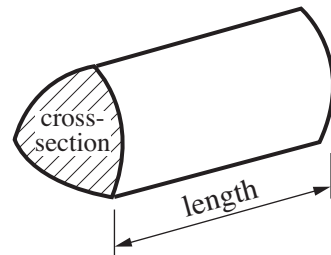
- The number of marks is given in brackets [ ] at the end of each question or part question.
- Section B starts with question 6.
- You are expected to use a calculator in Section B of this paper.
- The total number of marks for this Section is **25**.
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## Formulae Sheet

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



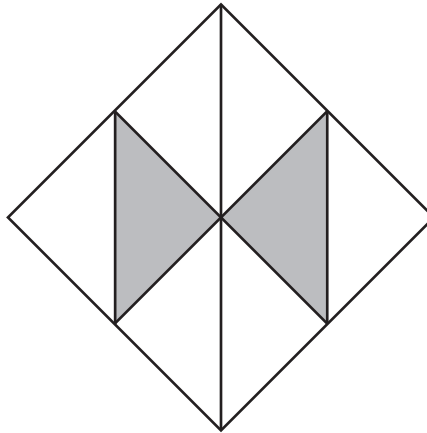
$$\text{Volume of prism} = (\text{area of cross-section}) \times \text{length}$$



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6 Here is a square.

What fraction of the square is shaded?



..... [1]

7 There are 4 runners in a relay team.

Anita always runs first.

Benita, Carli and Di always argue about who should run second, third and fourth.

Complete this list to show all the orders in which Benita (B), Carli (C) and Di (D) could run. One has been done for you.

*You may not need to use all the rows.*

Second	Third	Fourth
B	C	D

[2]

- 8 Kalif wants to buy this metal detector.



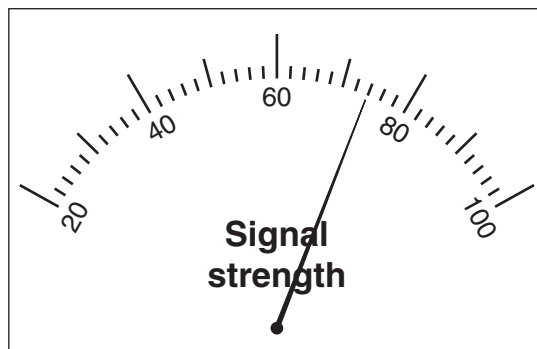
- (a) He already has £15 and wants to save the rest in 12 weeks.

How much should he save each week?

(a) £ ..... [3]

- (b) Kalif buys the metal detector.  
He explores some waste ground.

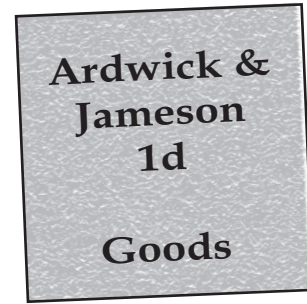
What is the signal strength shown on this scale?



(b) ..... [1]



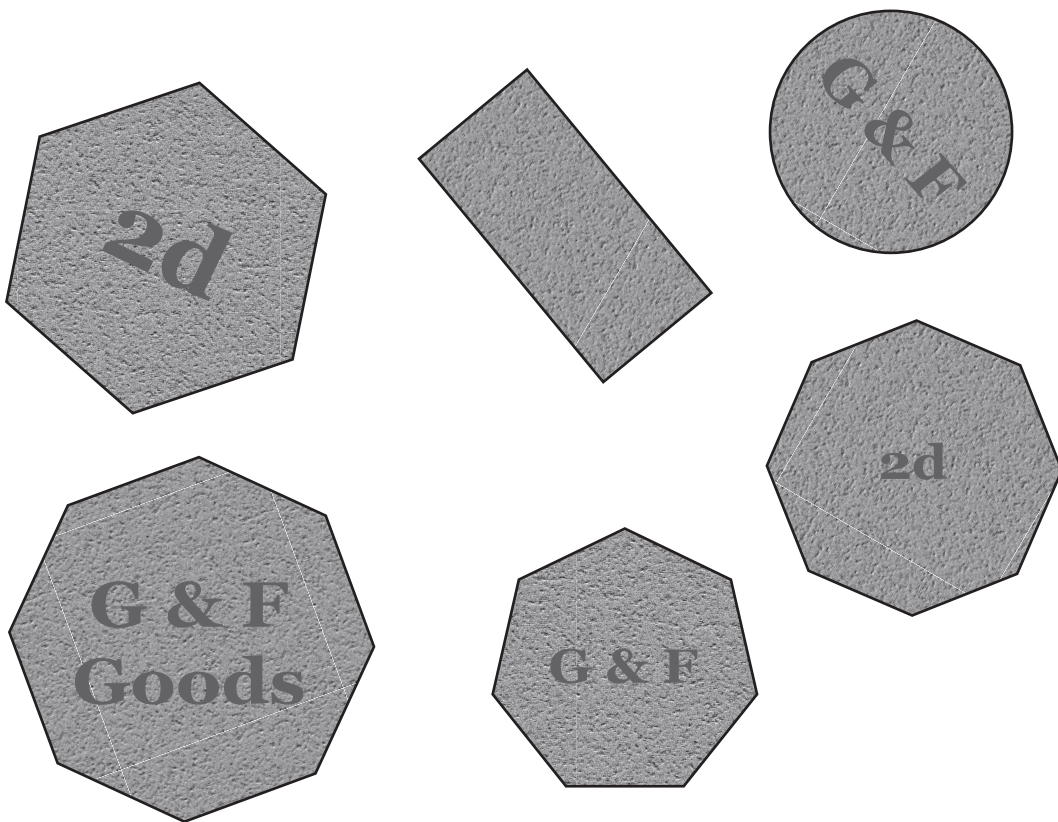
- (c) On his first try Kalif finds this square metal token.  
The token is over 200 years old.  
It was used instead of money in some factories.



Measure the length of one of the sides of the token.  
Give the units of your answer.

(c) ..... [2]

- (d) Kalif found some more tokens.

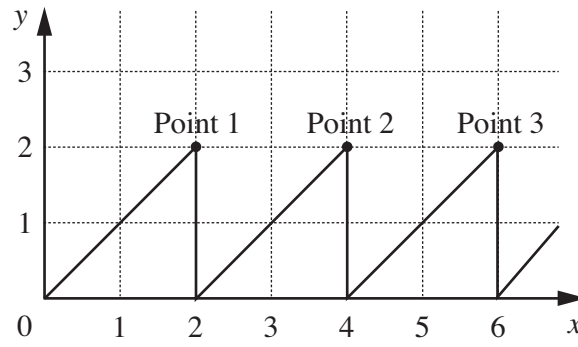


- (i) Measure the diameter of the circular token in millimetres.

(d)(i) ..... mm [1]

- (ii) Put a ring round one of the tokens which is an octagon. [1]

9 Here is the start of a saw-tooth pattern drawn on a grid.



(a) Complete this table showing the coordinates of points on the saw-tooth.

Point	1	2	3
Coordinates	(..... , .....)	(..... , .....)	(..... , .....)

[2]

(b) (i) What will the coordinates of Point 4 be?

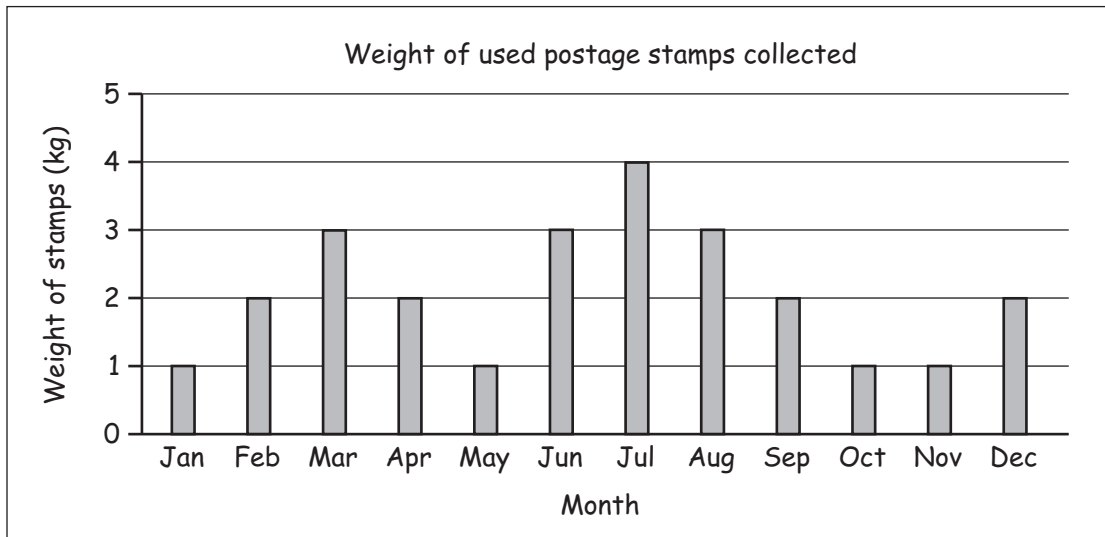
(b)(i) (..... , .....) [1]

(ii) How did you work out your answer to part (i)?

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

10 Shareen and Josh work in the post room of a builders' merchant.

- (a) They collect used stamps for charity.  
This chart shows how much they collected last year.



- (i) What weight of stamps did they collect in May?

(a)(i) ..... kg [1]

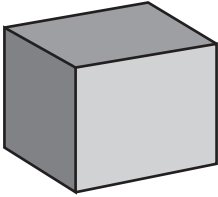
- (ii) Used stamps are worth £2 per kg to charities.

How much were the stamps they collected last year worth altogether?

(ii) £ ..... [3]

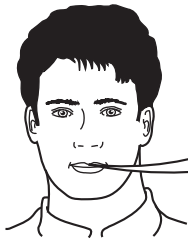
(b) This table shows the cost of sending a parcel.

Weight not over...	Cost
2 kg	£4.20
4 kg	£6.85
6 kg	£9.30
8 kg	£11.40
10 kg	£12.24
20 kg	£14.26

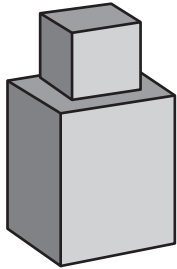


Shareen needs to post 10 kg of nails.  
This will cost £12.24 for one parcel.

Josh says:



It would be cheaper to send the nails in two separate parcels with a total weight of 10 kg.



Is Josh correct?  
Show working to explain your answer.

Write  
Yes or No.

..... because .....

.....

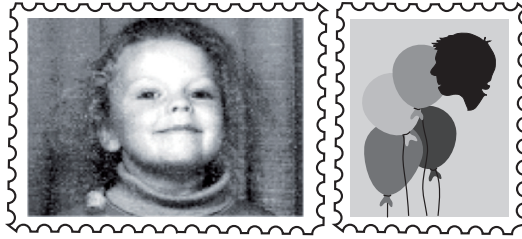
.....

.....

..... [3]

(c) Josh has a sister. It is her 21st birthday soon.

Josh wants to buy her some special postage stamps that show her as a baby.



He can order these on the Internet.  
 The special stamps cost £7.50 for a sheet of 10.  
 Normal stamps costs 36p each.

How much more does a sheet of 10 special stamps  
 cost than 10 normal stamps?



(c) £ ..... [3]

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