

Wednesday 13 June 2012 – Morning

GCSE MATHEMATICS A

A503/01 Unit C (Foundation Tier)

Candidates answer on the Question Paper.

OCR supplied materials:

None

Other materials required:

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

Duration: 1 hour 30 minutes



Candidate forename		Candidate surname	
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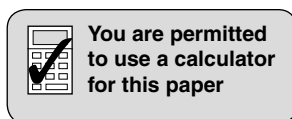
Centre number							Candidate number				
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INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Your answers should be supported with appropriate working. Marks may be given for a correct method even if the answer is incorrect.
- 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).
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

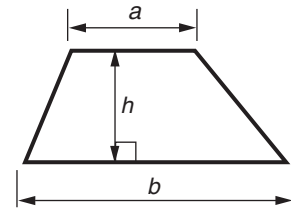
- The number of marks is given in brackets [] at the end of each question or part question.
- Your Quality of Written Communication is assessed in questions marked with an asterisk (*).
- Use the π button on your calculator or take π to be 3.142 unless the question says otherwise.
- The total number of marks for this paper is **100**.
- This document consists of **20** pages. Any blank pages are indicated.



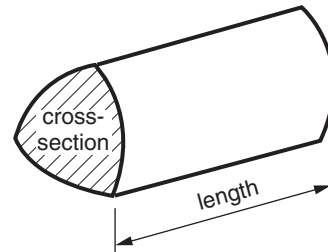
This paper has been pre modified for carrier language

Formulae Sheet: Foundation Tier

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



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



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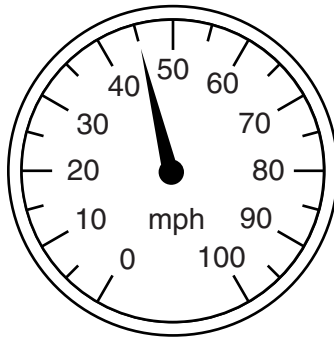
- 3 (a) Complete each sentence.
Use the correct **metric** unit in each part.

- (i) The weight of a newborn baby is 3.2 _____ .
- (ii) The capacity of a medicine spoon is 5 _____ .
- (iii) The distance from Stoke to Birmingham is 75 _____ .
- (iv) The length of a car is 3.2 _____ .

[4]

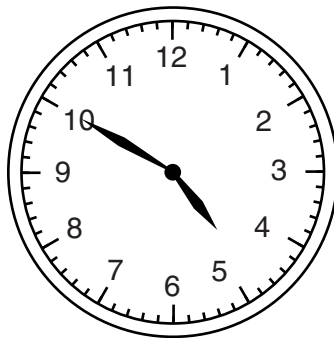
- (b) Write down the reading shown in each part.

(i)



(b)(i) _____ mph [1]

(ii)



(ii) _____ [1]

- 4 The table shows the temperatures at midday on one day in January in some cities around the world.

City	Temperature ($^{\circ}\text{C}$)
London	-2
Toronto	-10
Bangkok	27
Miami	21
Chicago	-12
Moscow	-15

- (a) Which city had the lowest temperature?

(a) _____ [1]

- (b) What was the difference in temperature between London and Miami?

(b) _____ $^{\circ}\text{C}$ [1]

- (c) Complete the following sentence.

The temperature in _____ was 2°C warmer than the
temperature in _____ .

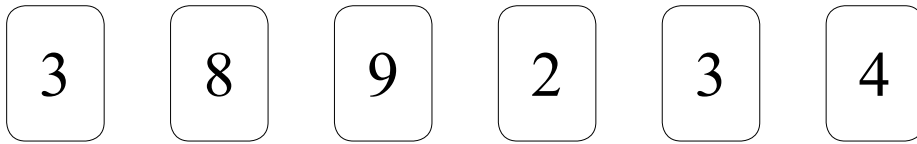
[1]

- (d) The following day, the temperature at midday in Toronto was recorded.
It was 5°C cooler than the previous day.

What was this temperature?

(d) _____ $^{\circ}\text{C}$ [1]

- 5 (a) Eleanour chooses one of these cards at random.



Choose from the words below to complete these sentences.

impossible	certain	likely	unlikely	evens
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- (i) It is _____ that she chooses a number bigger than 2.
- (ii) It is _____ that she chooses an odd number.
- (iii) It is _____ that she chooses a number less than 1.
- (iv) It is _____ that she chooses a number less than 10. [4]

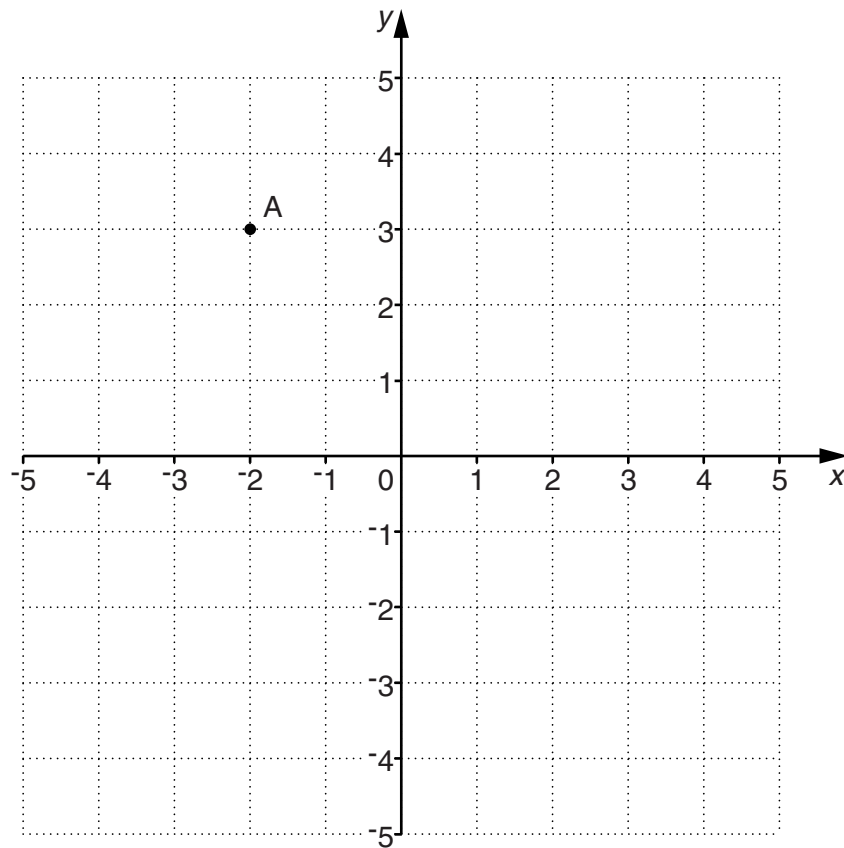
- (b) Two **more** cards are now placed with the set of cards in part (a). Eleanour chooses one of these eight cards at random.

- It is evens that she chooses a number bigger than 7.
- It is also evens that she chooses a multiple of 3.

Write down a possible number for each of the new cards.

(b) _____ and _____ [2]

6 Point A is shown on the grid below.



(a) Write down the coordinates of A.

(a) (_____ , _____) [1]

(b) Plot and label B (3, 3) and C (-3, -1).

[2]

(c) What are the coordinates of D if A, B, C and D are four corners of a parallelogram?

(c) (_____ , _____) [1]

7 Mr and Mrs Millward and their daughter, aged 14, are working out the cost of watching their local football team next season.

- (a) They are considering buying season tickets that allow them to watch every home game and sit in the **West Stand**.

Season ticket prices	
West Stand	
Adult	£450 each
Child (17 and under)	£160 each
East Stand	
Adult	£410 each
Child (17 and under)	£140 each

Calculate the total cost of season tickets for Mr and Mrs Millward and their daughter for the West Stand.

(a) £ _____ [2]

- (b) An alternative to buying season tickets is to buy individual match tickets.

Individual match ticket prices	
West Stand	
Adult	£36 each
Child (17 and under)	£16 each
East Stand	
Adult	£32 each
Child (17 and under)	£13.50 each

The Millward family decide to sit in the West Stand and go to all 19 home games.

How much cheaper is it for them to buy season tickets rather than individual match tickets?

(b) £ _____ [3]

- 8 Henna is ordering a take-away meal and chooses at random both a starter and a main course from the menu below.

Starter	Main course
Ribs (R)	Chicken (C)
Prawn Crackers (P)	Duck (D)
Spring Rolls (S)	Beef (B)

- (a) Complete this table to show all the possible choices that Henna could make. You may not need all the lines.

Starter	Main course
R	C

[2]

- (b) Write down the probability that Henna chooses Spring Rolls and Duck for her meal.

(b) _____ [2]

- (c) Write down the probability that Henna chooses Chicken as part of her meal.

(c) _____ [1]

9 (a) Convert

(i) 45 centimetres to millimetres,

(a)(i) _____ mm [1]

(ii) 300 grams to kilograms.

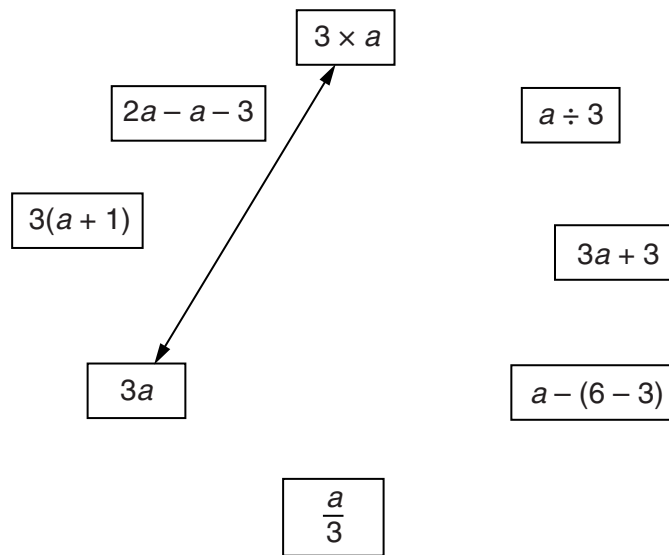
(ii) _____ kg [1]

(b) Complete the following.

(i) 300 metres + 800 metres = _____ kilometres. [1]

(ii) 860 grams + _____ = 1.5 kilograms. [2]

10 (a) Use arrows to join the four pairs of expressions that are equivalent. One pair has been done for you.



[3]

(b) Work out the value of $x^2 + 5x$ when

(i) $x = 4$,

(b)(i) _____ [1]

(ii) $x = -3$.

(ii) _____ [2]

11 (a) Calculate.

(i) 4.2^3

(a)(i) _____ [1]

(ii) $\sqrt{65.61}$

(ii) _____ [1]

(iii) $\frac{3.6 + 2.1}{8}$

(iii) _____ [1]

(b) (i) Round 3.568 to one decimal place.

(b)(i) _____ [1]

(ii) Round 6892 to one significant figure.

(ii) _____ [1]

12 (a) Simplify.

(i) $5a + 7a$

(a)(i) _____ [1]

(ii) $8 \times 2a$

(ii) _____ [1]

(iii) $20a \div 5$

(iii) _____ [1]

(iv) $7a + 3b - 5a + 2b$

(iv) _____ [2]

(b) Multiply out.

$8(5 + 2x)$

(b) _____ [1]

- 13** Maria drinks $\frac{2}{5}$ of a litre of orange juice each day.
Orange juice is sold in 1 litre cartons and costs 86p per carton.
Maria buys enough orange juice to last her 14 days.

How much does she spend?

£ _____ [4]

- 14** Xanda chooses a counter at random from a bag containing red counters and white counters.
The table shows the probabilities that a particular colour is chosen.

Colour of counter	Probability
Red	0.4
White	

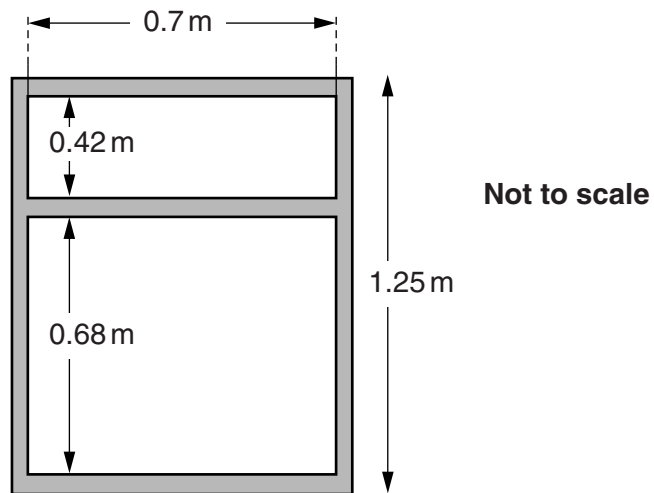
(a) Complete the table. [1]

(b) There are 120 counters altogether in the bag.

Calculate the number of counters of each colour.

(b) Red _____ White _____ [3]

15* Ellen buys a new window.



The window has 2 rectangular panes of glass and a plastic frame. The frame, shown shaded in the diagram, is 5 cm wide.

The cost of the window is

- £55 per m^2 of glass
PLUS
- £3.20 for each 0.1 m of the frame
PLUS
- £125 fitting charge

Work out the total cost of the window.
Show all of your working.

£ _____ [6]

16 Steven goes on holiday to New York and changes £850 into dollars (\$).

The exchange rate is £1 = \$1.60.

He spends \$625 and brings the remaining dollars home.
On his return he changes the remaining dollars into pounds.

The exchange rate is now £1 = \$1.50.

How much money, in pounds, does he get?

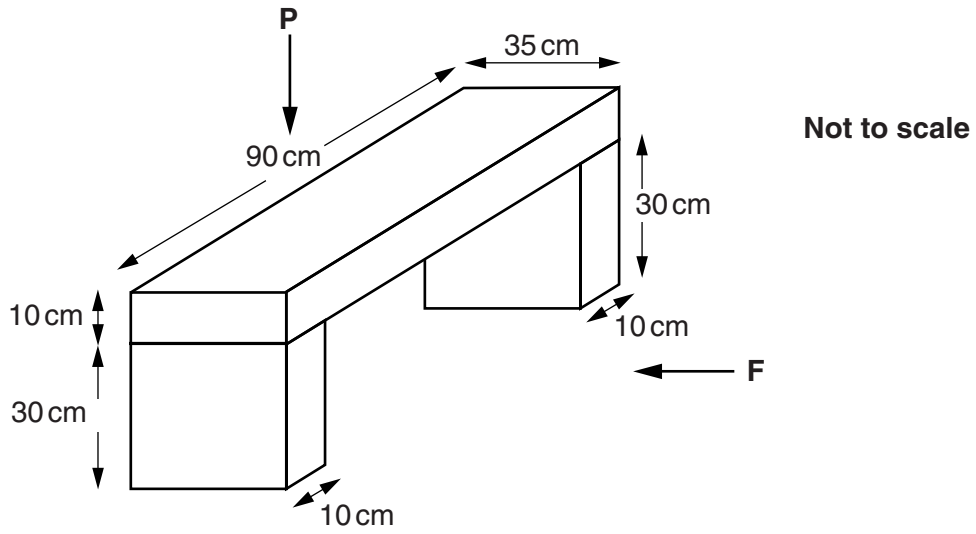
£ _____ [5]

17 Complete the five missing amounts in this bill.

35 m ² of carpet at £25.20 per m ²	£ _____
35 m ² of underlay at £ _____ per m ²	£ _____
Fixings	£ 13.35
Cost of all items	£ 1112.00
VAT (20% of the cost of all items)	£ _____
TOTAL	£ _____

[5]

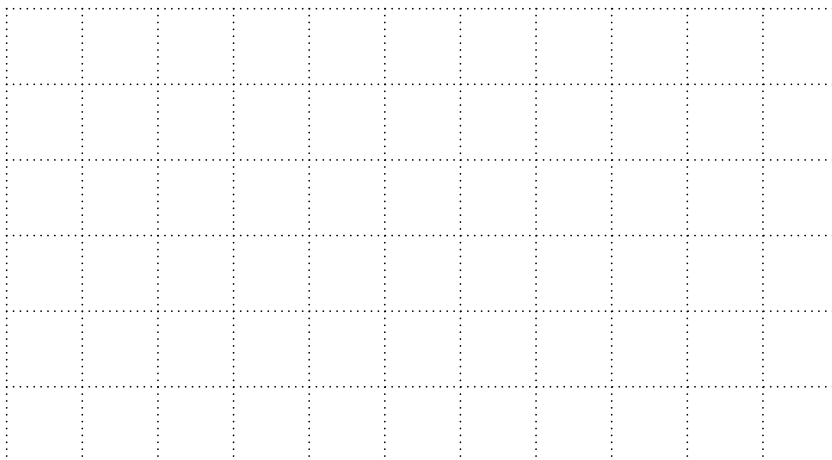
18 This garden bench is made from three cuboids.



(a) On the grids, draw the front elevation (view from F) and the plan (view from P). Use a scale of 1 cm to represent 10 cm.



Front elevation



Plan

[4]

- (b) Work out the total volume of the garden bench.
Give the units of your answer.

(b) _____ [4]

Turn over for questions 19 and 20

19 The equation $x^3 - 6x = 4$ has a solution between 2 and 3.

Use trial and improvement to find this solution correct to one decimal place.
Show all your trials and their outcomes.

[4]

20 Anil is doing a traffic survey.

He is recording how much of the traffic approaching his town goes to the town centre and how much uses the ring road around the town.

Every Monday for three weeks, Anil stands at the junction of the road to the town centre and the ring road.

He counts the number of cars going in each of these directions.

Here are his results.

Direction	Number of cars		
Town centre	275	255	241
Ring road	174	195	170

(a) Explain why it is reasonable to estimate the probabilities of cars travelling in each of these directions from this survey.

_____ [1]

(b) Use the figures to estimate the probability that next Monday a randomly chosen car approaching the town will go to the town centre.

(b) _____ [3]

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