OCR
Oxford Cambridge and RSA

F

Friday 6 November 2015 – 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

A503015

Candidate forename		Candidate surname	

Centre number						Candidate number				

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.

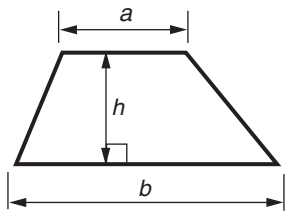
INFORMATION FOR CANDIDATES

- 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.

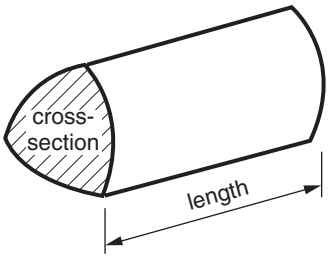
You are permitted to use a calculator for this paper

Formulae Sheet: Foundation Tier

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

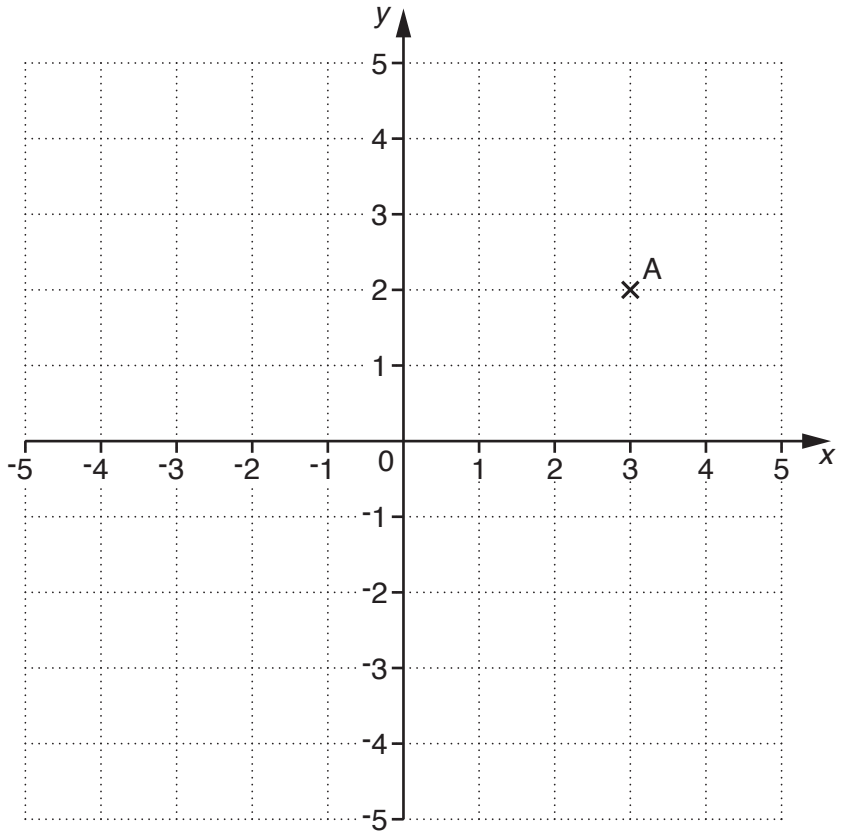


Volume of prism = (area of cross-section) × length



PLEASE DO NOT WRITE ON THIS PAGE

1 Here is a coordinate grid.



(a) Write down the coordinates of point A.

(a) (..... , ...) **[1]**

(b) Plot the point (0, $^{-}$1). Label this point C. **[1]**

(c) AC is a diagonal of the square ABCD.

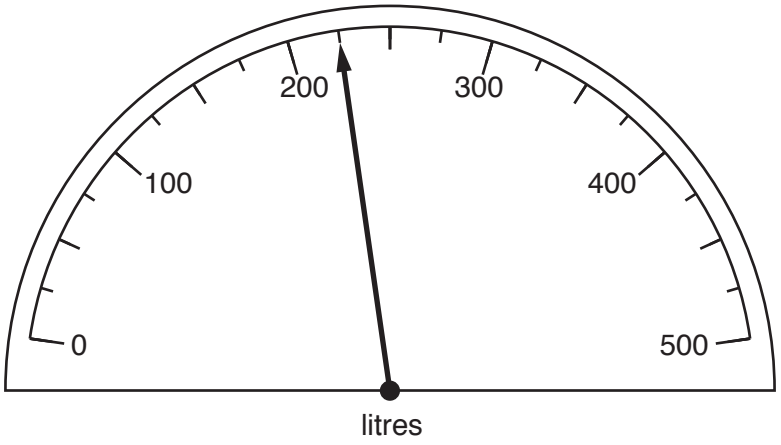
Draw the square ABCD.
Write down the coordinates of the points B and D.

(c) (..... , ...)

(..... , ...) **[3]**

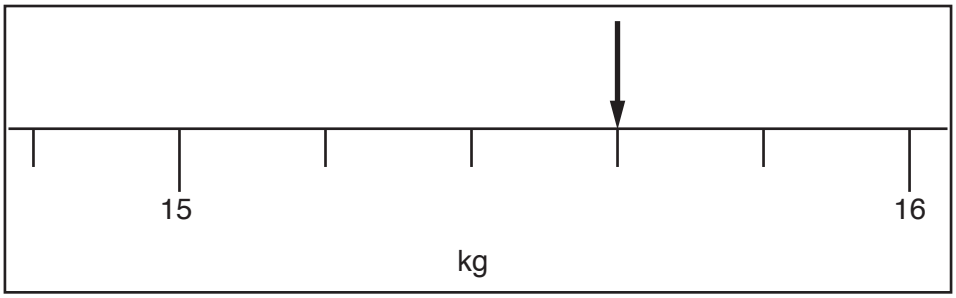
2 **(a)** Write down the reading shown on each of these scales.

(i)



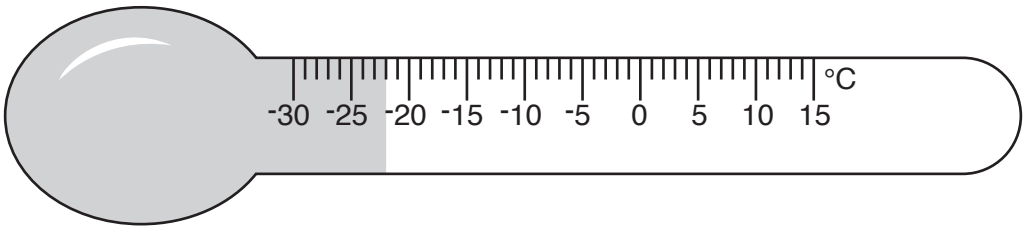
(a)(i) ..... litres **[1]**

(ii)



(ii) ..... kg **[1]**

(iii)



(iii) ..... °C **[1]**

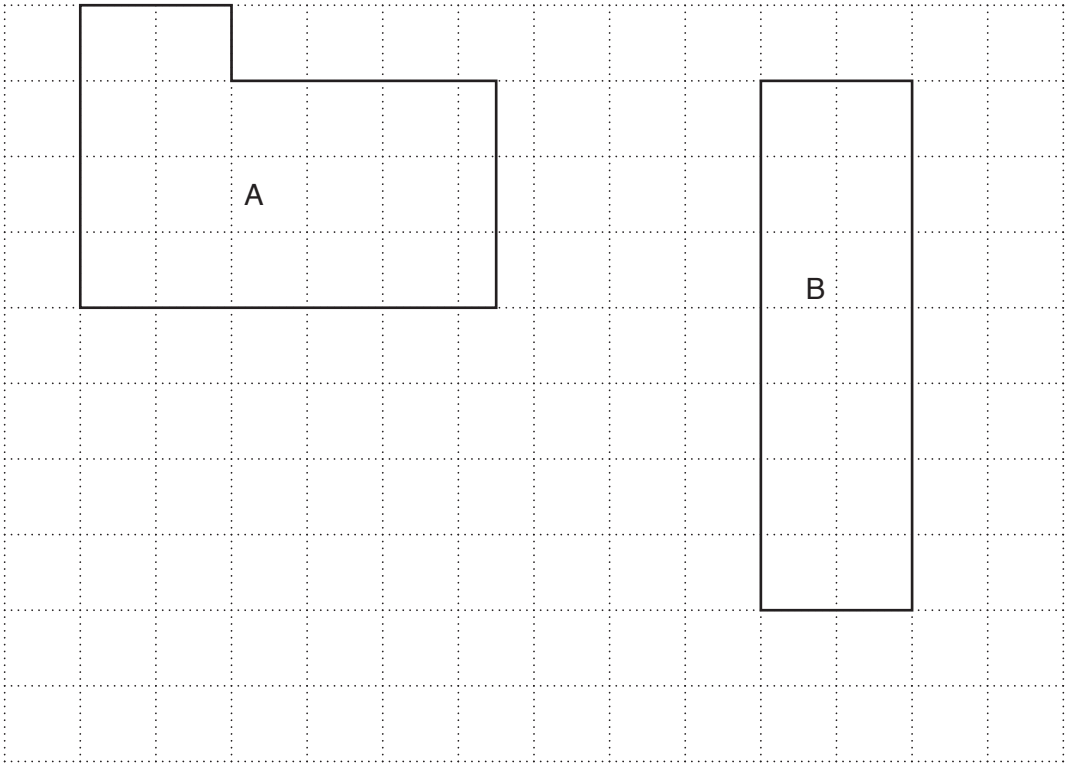
(b) Complete each sentence by writing the most appropriate **metric** unit.

(i) The height of a tree is 12 ..... **[1]**

(ii) A bucket holds 10 ..... of water. **[1]**

(iii) The distance between London and Paris is 341 ..... **[1]**

3 These shapes are drawn on a one-centimetre square grid.



(a) Complete the following.

The area of shape A is ..... cm^2 and the area of shape B is ..... cm^2.

Shape ..... has the bigger area by ..... cm^2. **[3]**

(b) Work out the perimeter of shape B.

(b) ..... cm **[1]**

4 In golf, a ball is placed on a tee before being hit.
Jackson is playing golf and has **only** the following tees in his bag.

- 10 orange tees
- 1 red tee
- 5 white tees
- 4 yellow tees

(a) Jackson chooses a tee at random from his bag.

Choose from the words below to complete each sentence.

certain	likely	impossible	evens	unlikely

It is ..... that he chooses a red tee.

It is ..... that he does **not** choose a white tee.

It is ..... that he chooses a pink tee. **[3]**

(b) April has 10 tees in her bag.
Her tees are also only orange, red, white or yellow.
She chooses a tee at random.

- It is evens that she chooses a red tee.
- It is more likely that she chooses a yellow tee than a white tee.
- It is unlikely that she chooses an orange tee.

Write down a possible number of tees of each of the colours that she has in her bag.

(b) orange .....

red .....

white .....

yellow .....

[4]

5 The table shows the times that Amanda was at work one week.

	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Start time	0800	0815	0800	0830	0745
Finish time	1630	.....	1630	1550	.....
Time at work	8 hours 30 minutes	8 hours 10 minutes	8 hours 30 minutes	..... hours ..... minutes	6 hours 50 minutes

(a) Complete the table. **[3]**

(b) How long did Amanda spend at work altogether that week?

(b) ..... hours ..... minutes **[2]**

6 Simplify.

(a) $9 \times y \times 2$

(a) ..... **[1]**

(b) $4x + 8x - x$

(b) ..... **[1]**

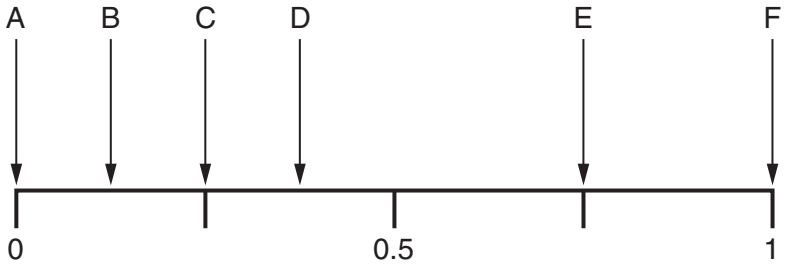
(c) $\frac{8p}{2}$

(c) ..... **[1]**

(d) $3a + 2b - 2a - 5b$

(d) ..... **[2]**

7 **(a)** Samantha has only these 8 coins in her purse.



Samantha chooses a coin at random from her purse.

Which arrow shows the probability that she chooses

(i) a 50p coin,

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

(ii) a 20p coin,

(ii) Arrow ..... **[1]**

(iii) a coin with a value of **less than** £1?

(iii) Arrow ..... **[1]**

(b) Samantha buys a magazine and pays with a £5 note.
She receives 8 coins in change and puts these in her purse with the other 8 coins.
She still has only 10p, 20p and 50p coins in her purse.
If she now chooses a coin at random from her purse, the probability of choosing a 50p coin is 0.5.

Work out a possible cost for the magazine.

(b) £ ..... **[3]**

8 **(a)** Calculate.

(i) $\frac{5}{6} - \frac{2}{5}$

Give your answer as a fraction.

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

(ii) $1{\cdot}8^2 + \sqrt{2 \cdot 3}$

Give your answer correct to one decimal place.

(ii) ..... **[2]**

(iii) 3.2 km – 176 m

Give the units with your answer.

(iii) ..... **[2]**

(b) Complete this calculation.

Give the final answer as a fraction in its simplest form.

$$\frac{2}{9} \div \frac{1}{3}$$

$$= \frac{\square}{9} \times \frac{\square}{\square}$$

$$= \frac{\square}{\square}$$

[3]

9 Solve.

(a) $x + 7 = 3$

(a) ..... **[1]**

(b) $7x = 45.5$

(b) ..... **[1]**

(c) $\frac{x}{3} = 15$

(c) ..... **[1]**

(d) $16 = 4x - 3$

(d) ..... **[2]**

10 Seven cupcakes cost £8.47.

Calculate the cost of ten of these cupcakes.

£ ..... **[3]**

11 A fair **four-sided** dice with faces numbered 1, 2, 3 and 4 is rolled.

(a) What is the probability of it landing on

(i) 3,

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

(ii) a square number?

(ii) ..... **[1]**

(b) The **four-sided** dice is rolled 60 times.
How many times might you expect it to land on 3?

(b) ..... **[2]**

12 **(a)** Ian took part in a charity walk.
He started at 6 pm and finished at 6 am.
For every 5 minutes Ian walked, he covered 400 m.
For 10 minutes in every hour he stopped for a rest.

How many kilometres did Ian walk in the 12 hours?

(a) ..... km **[4]**

(b) Convert your answer to part **(a)** to miles.

(b) ..... miles **[1]**

13 The circumference of the circular London Eye is 424 m.

Calculate the diameter of the circle.
Give your answer correct to the nearest metre.

..... m **[3]**

14 The costs of **one litre** of each of two types of fuel are shown below.

Diesel	Unleaded petrol
£1.40	£1.32

(a) Alan buys 35 litres of **diesel** every week.

How much does he spend on diesel in one year?

(a) £ ..... **[3]**

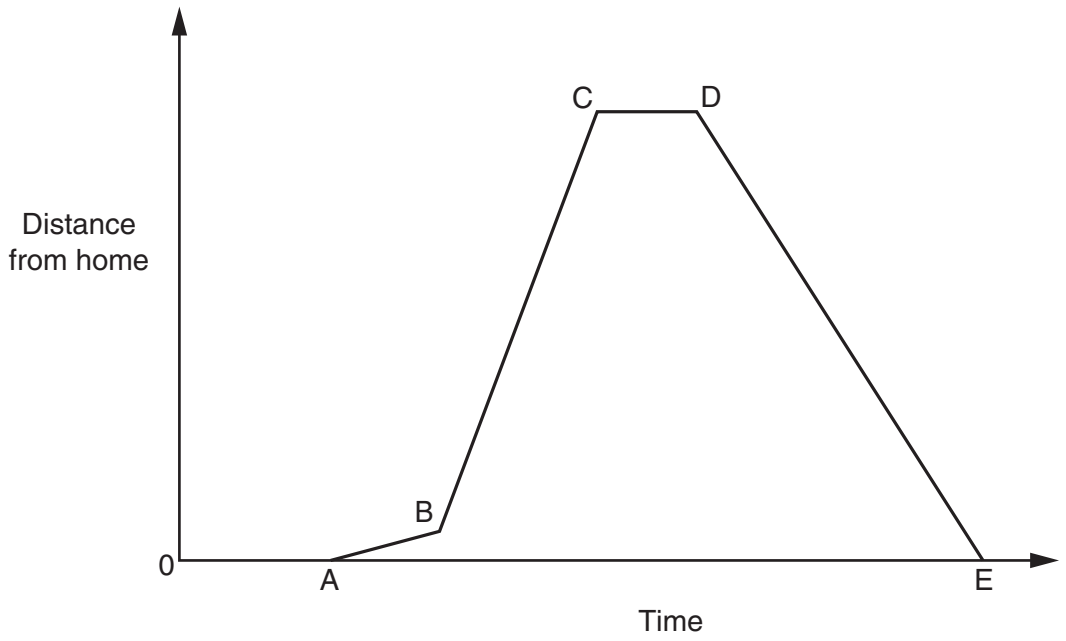
(b)* Daniel's car uses **diesel**.
The diesel to drive 550 miles costs £68.95.

Maja's car uses unleaded petrol.
The petrol to drive 460 miles costs £60.06.

Whose car has the greater fuel economy, in miles per litre? **[6]**

15 **(a)** Joe goes for a ride on his motorbike.

The graph below represents his journey.



Write a sentence to describe each part of Joe's journey.

The first has been done for you.

A to B – Joe sets off from home and then travels at a slow speed.

B to C – .....

C to D – .....

D to E – ..... **[3]**

(b) On one part of his journey Joe travels for $\frac{3}{4}$ hr at an average speed of 28 km/h.

Calculate how far he travels in this part of his journey.

(b) ..... km **[2]**

16 Four friends go tenpin bowling.
They each pay for 3 games.
Each person pays £1.99 for the hire of shoes.
The total cost is £60.76.

Work out the cost each person pays for one game.

£ ..... **[3]**

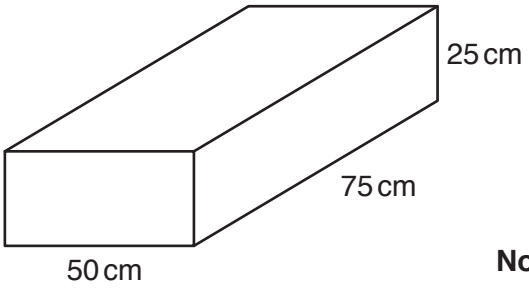
17 A dice is biased.
The table shows the probability of obtaining each of the scores on the dice.

Score	1	2	3	4	5	6
Probability	x	$2x$	$3x$	$4x$	$5x$	$6x$

Work out the probability of throwing the dice and scoring 3.
Give your answer as a fraction in its simplest form.

..... **[3]**

18 A closed, empty box is a cuboid.



Not to scale

(a) On the grid below, complete the net of the box.

The base and two of the sides have been drawn.

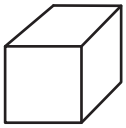
Use a scale of 1 cm to represent 10 cm.

[3]

(b) Work out the total area of the card used to make the **full size** box.

(b) ..... cm^2 **[3]**

(c) The empty box is filled with small boxes which are all cubes of edge 5 cm.



(i) Calculate the volume of one of these small boxes.

(c)(i) ..... cm^3 **[2]**

(ii) How many of these small boxes are needed to fill the large box?

(ii) ..... **[3]**

19 Georgina stops at a petrol station to put petrol in her car.

The gauge on the car shows that the petrol tank is $\frac{1}{4}$ full.
Georgina puts 42 litres of petrol into the tank.
The gauge now shows the petrol tank is $\frac{5}{6}$ full.

How many litres of petrol would be in the tank when it is full?

..... litres **[3]**

END OF QUESTION PAPER

BLANK PAGE

PLEASE DO NOT WRITE ON THIS PAGE

PLEASE DO NOT WRITE ON THIS PAGE