

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



Candidate forename		Candidate surname	
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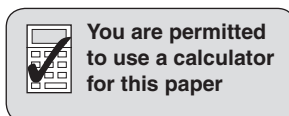
Centre number						Candidate number				
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INSTRUCTIONS TO CANDIDATES

- 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.

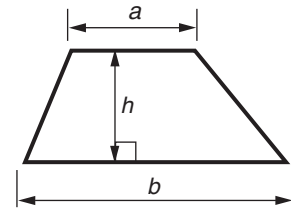
INFORMATION FOR CANDIDATES

- 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.

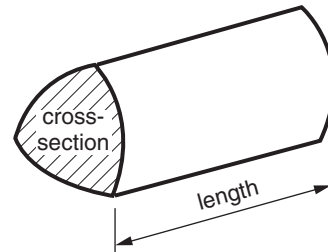


Formulae Sheet: Foundation Tier

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

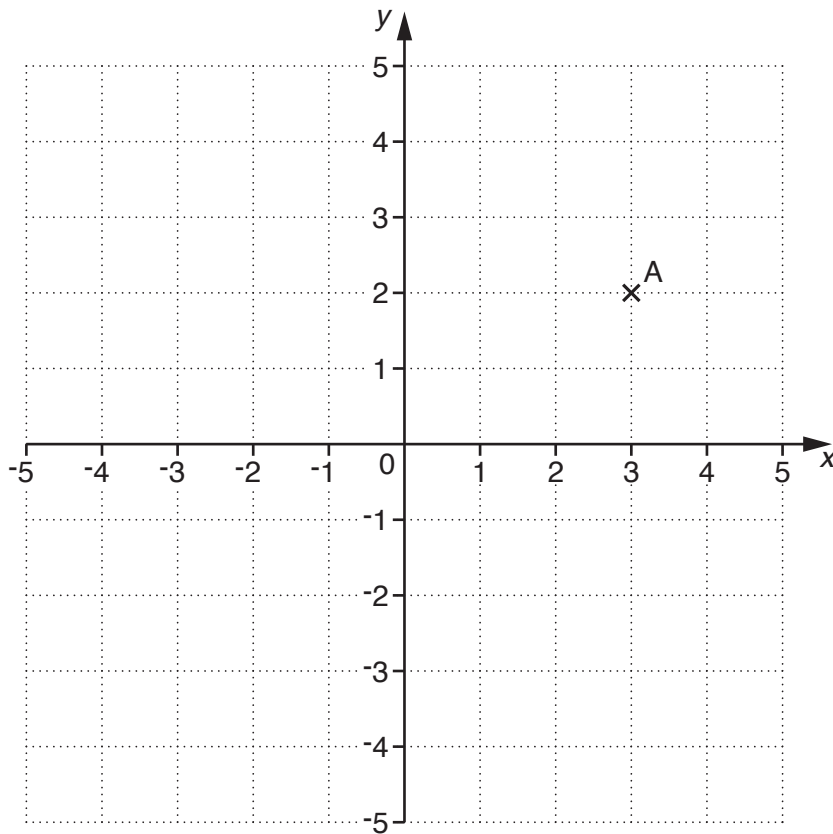


Volume of prism = (area of cross-section) \times length



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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.

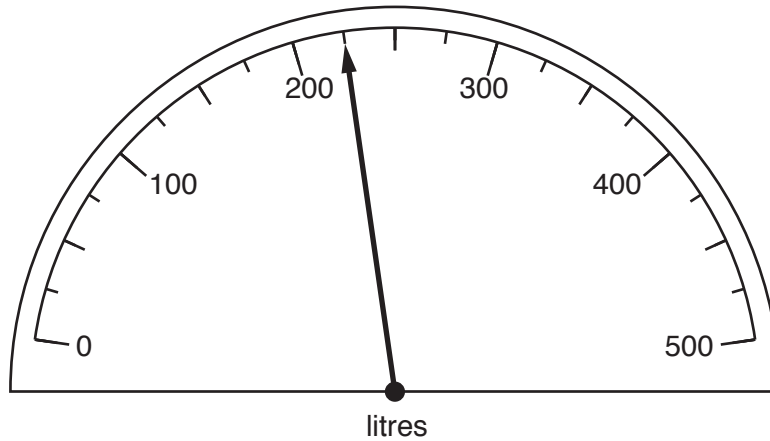
Write down the coordinates of the points B and D.

(c) (..... ,)

(..... ,) [3]

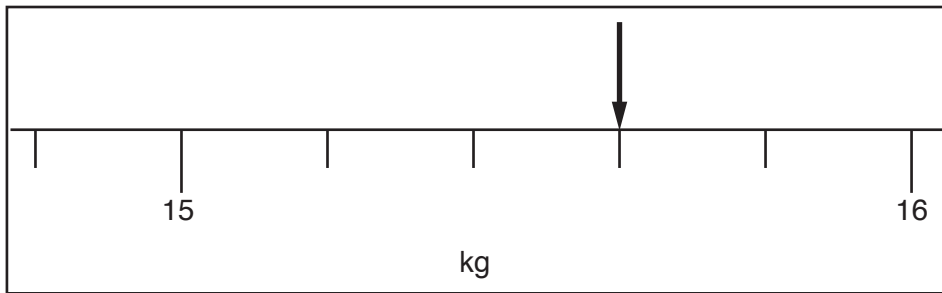
2 (a) Write down the reading shown on each of these scales.

(i)



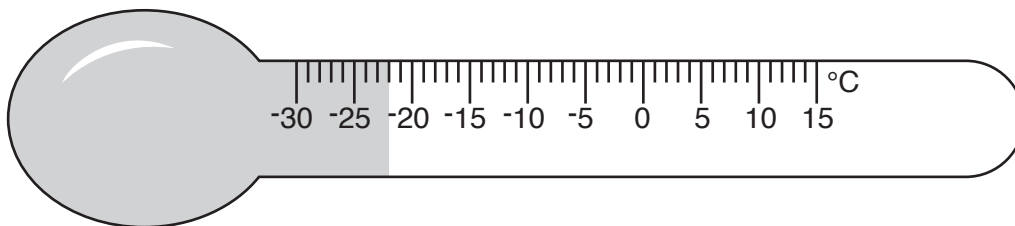
(a)(i) litres [1]

(ii)



(ii) kg [1]

(iii)



(iii) °C [1]

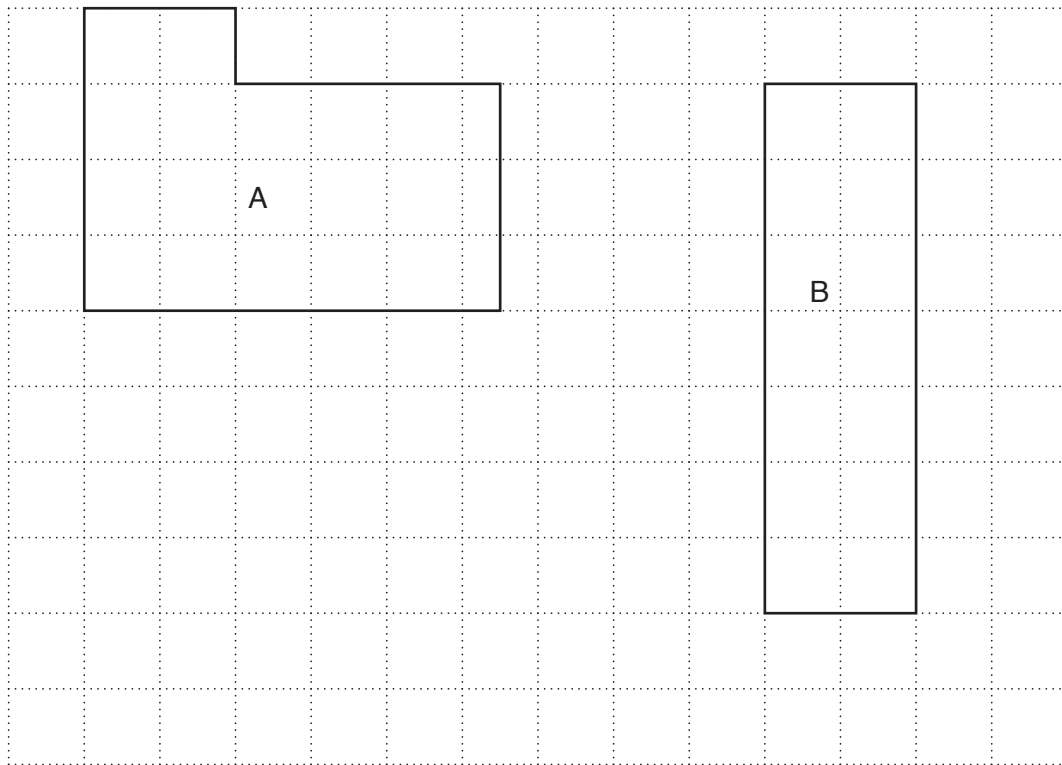
(b) Complete each sentence by writing the most appropriate **metric** unit.

(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	08 00	08 15	08 00	08 30	07 45
Finish time	16 30	16 30	15 50
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]

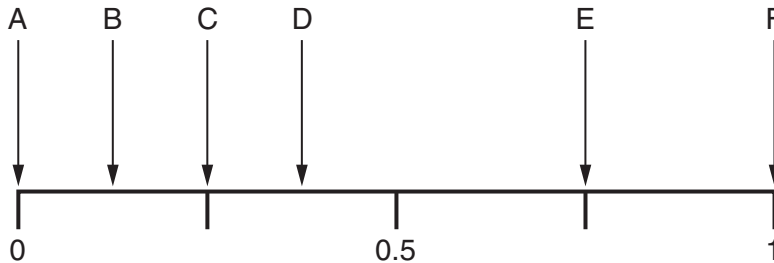
(c) $\frac{8p}{2}$

(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) $1.8^2 + \sqrt{2 \cdot 3}$

Give your answer correct to one decimal place.

(ii) [2]

(iii) $3.2\text{ km} - 176\text{ m}$

Give the units with your answer.

(iii) [2]

(b) Complete this calculation.

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

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

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

$$= \frac{\boxed{}}{\boxed{}}$$

[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.

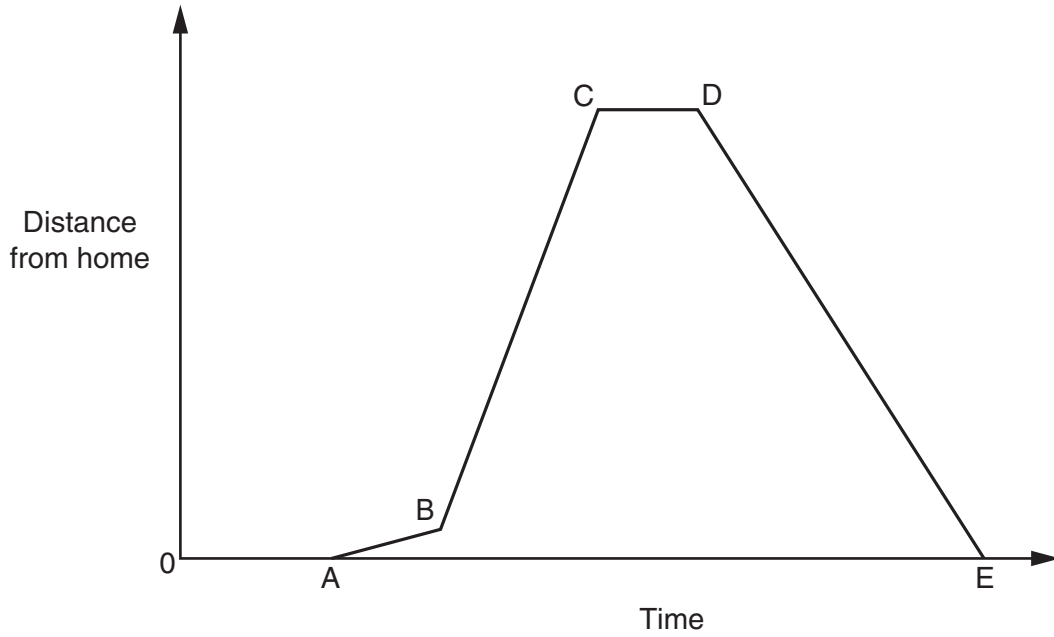
The petrol to drive 460 miles costs £60.06.

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]

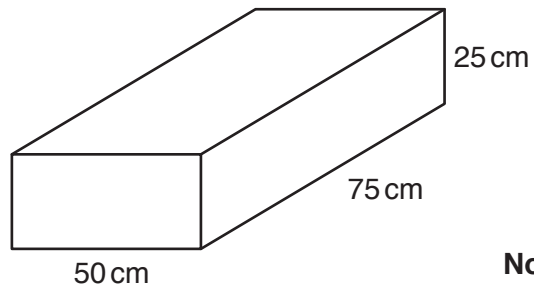
- 17** A dice is biased.
 The table shows the probability of obtaining each of the scores on the dice.

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]

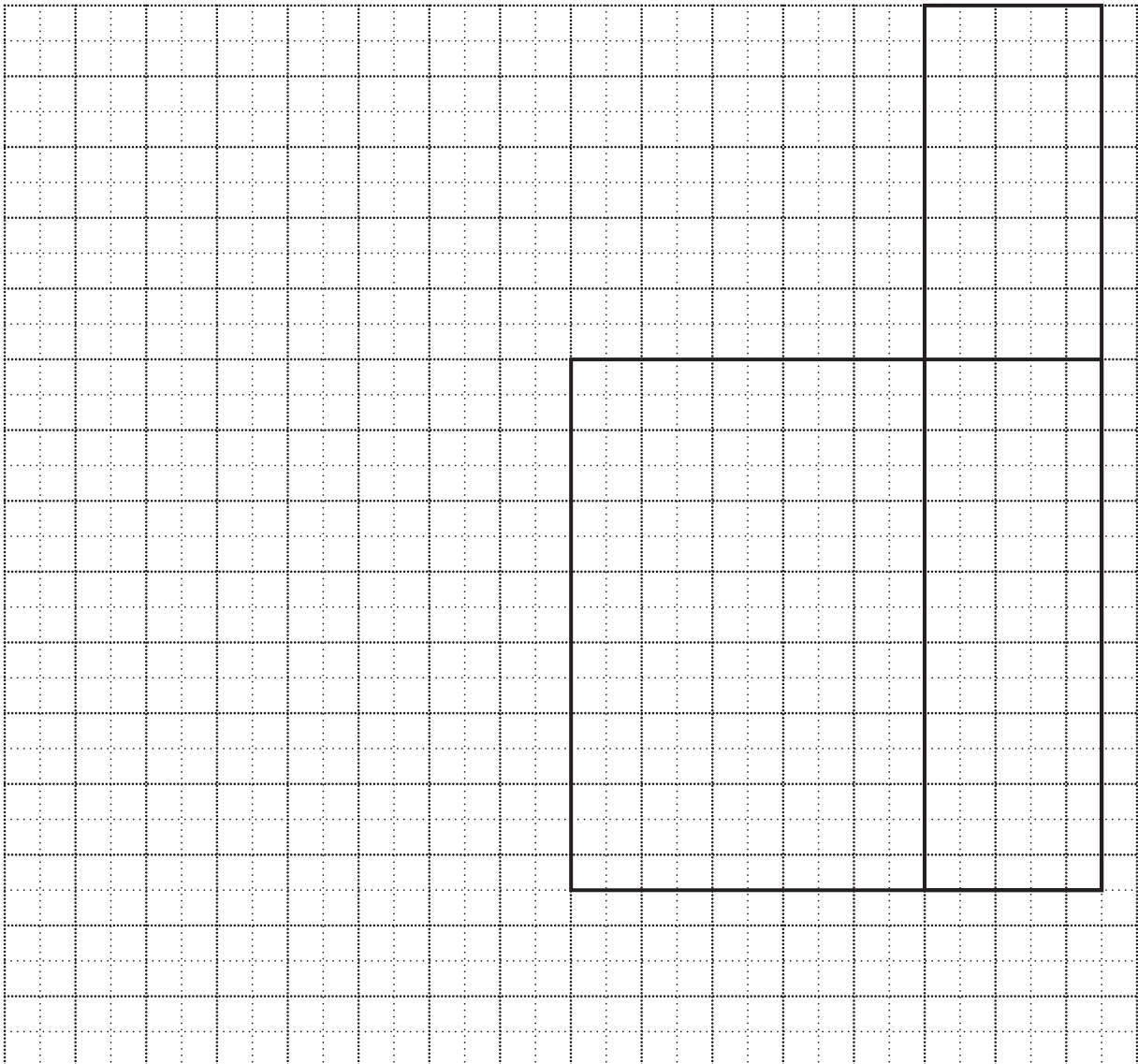
18 A closed, empty box is a cuboid.



(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.

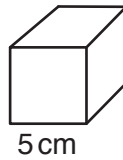


[3]

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

(b) cm² [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) cm³ [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

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