Surname	Centre Number	Candidate Number
Other Names		0

WJEC CBAC

GCSE

SOLUTIONS.

185/08

MATHEMATICS
FOUNDATION TIER
PAPER 2

A.M. THURSDAY, 17 November 2011

2 hours

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1	6	
2	4	
3	4	
4	4	
5	7	
6	4	
7	4	
8	4	
9	6	
10	4	
11	3	
12	6	
13	8	
14	4	
15	4	
16	6	
17	5	
18	6	
19	6	
20	5	
TOTAL MARK		

ADDITIONAL MATERIALS

A calculator will be required for this paper.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** the questions in the spaces provided.

Take π as 3·14 or use the π button on your calculator.

INFORMATION FOR CANDIDATES

You should give details of your method of solution especially when a calculator is used.

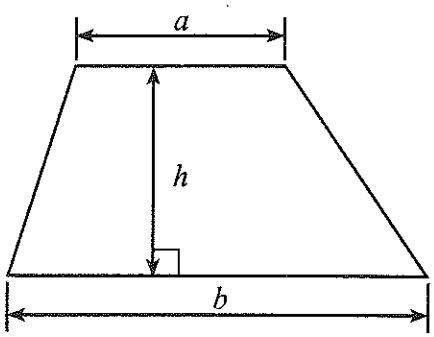
Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.

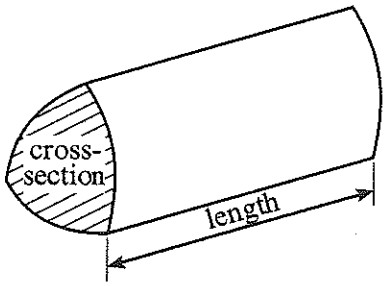
The number of marks is given in brackets at the end of each question or part-question.

Formula List

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



Volume of prism = area of cross-section × length



Examiner only

1. *(a)* Simon goes shopping.
Complete the following table to show his shopping bill.

Item	Cost
15" television	£ 120.38
6 pairs of socks @ £1.84 per pair	£ 11·04
3 sweaters @ £8.46 each	£ 25·38
5 packets of tissues @ 76p per packet	£ 3·80
Total	£ 536·80

[4]

(b) The shop gives a discount of 5%.
How much discount does Simon get?

£ 26·84

[2]

2. Write down the metric unit **best** used to measure

the distance from Milan to Venice, km

the weight of a person, kg

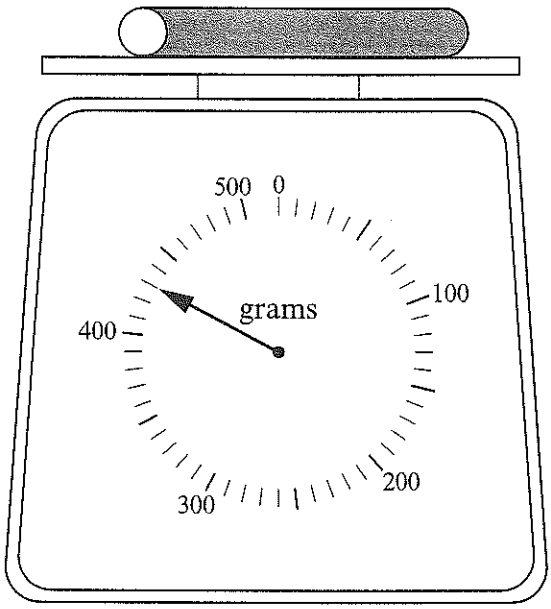
the volume of a bucket, litres

the length of a classroom. m

[4]

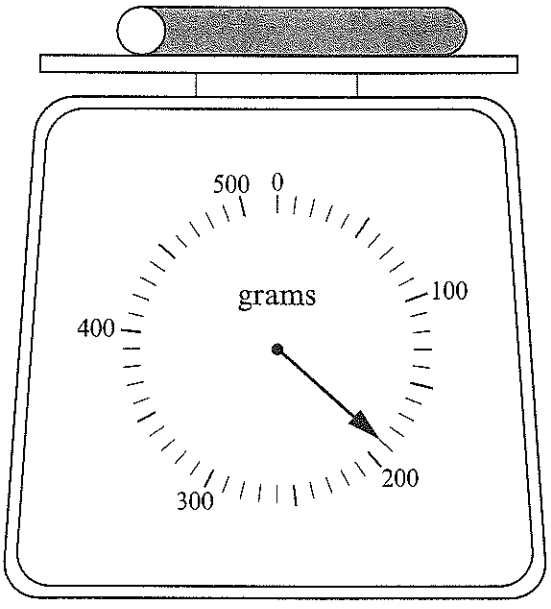
Examiner only

3. Katherine wants to find the weight of a small sweet.
A tube with 40 of the sweets is put on the scale.



Weight of the tube with sweets = 430 g

She pours out the sweets and weighs the empty tube.



Weight of the empty tube = 190 g

Find the weight of **one** small sweet.

$430 - 190 = 240\text{g}$

$\therefore \frac{240}{40} = 6\text{g}$ each sweet

[4]

Examiner only

4. A person's weekly wage is worked out using the formula

Wage = Number of hours of overtime × £15 + Basic pay

(a) Find a person's **Wage** when the **Number of hours of overtime** is 7 and the **Basic pay** is £150.

$W = (7 \times 15) + 150$

$Wage = 105 + 150$

$= £255$

[2]

(b) Find the **Number of hours of overtime**, when the **Wage** is £270 and the **Basic pay** is £180.

$270 = (N \times 15) + 180$

$90 = 15N$

$\frac{90}{15} = N$

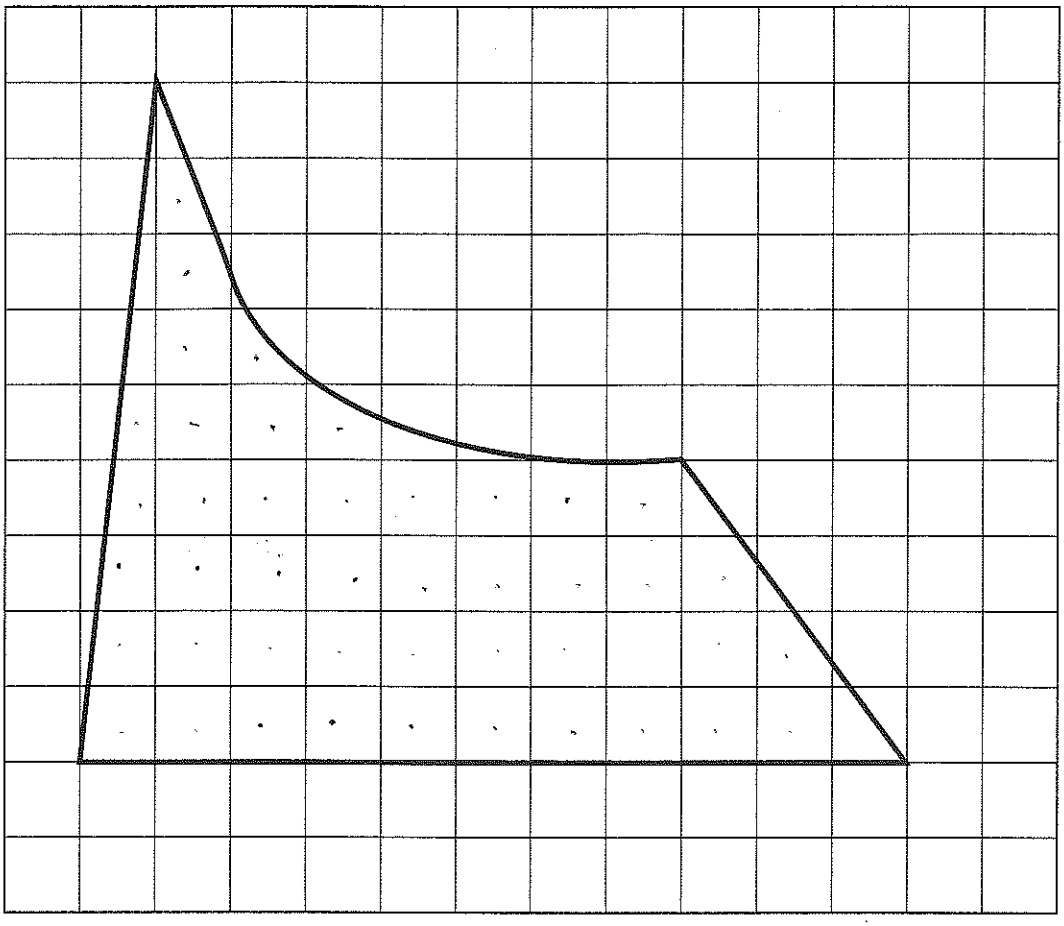
$6 = N$.

[2]

0185 080005

Examiner only

5. *(a)*



The above shape, drawn on a square grid, represents a garden. By counting squares, estimate the area of the garden when **every square represents an area of 5 m^2.**

46 squares

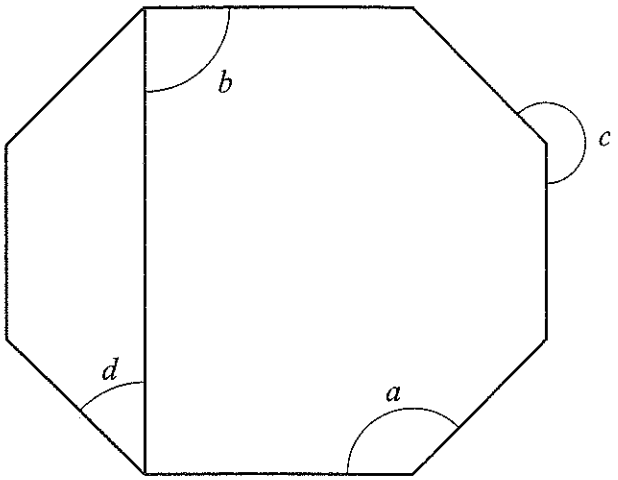
= 46 x 5

= 230

Area = 230 m^2

[3]

(b)



Look at the angles marked *a, b, c* and *d*.
Write the letter of the angle alongside its special name.

acute angle ..... d .....

reflex angle ..... c .....

right angle ..... b .....

obtuse angle ..... a .....

[4]

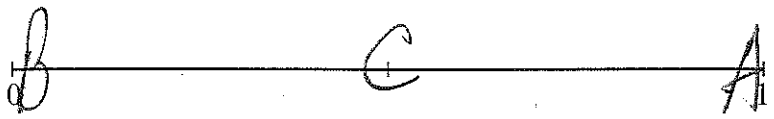
Examiner only

6. *(a)* On the probability scale shown below, mark the points **A**, **B** and **C** where:

A is the probability of there being snow at the North Pole in December.

B is the probability of it raining for 3 consecutive days, in August 2012, in the Sahara desert.

C is the probability of the score being an odd number when a fair dice is thrown.



[3]

(b) A school runs a raffle and one hundred and sixty five pupils buy a ticket.
Melanie says that it is equally likely that the winner will be a boy or a girl.
Is she correct? You must give a reason for your choice.

No. No data on number of boys + girls buying tickets

[1]

Examiner only

7. The gas meter readings at the beginning and the end of a period were:

The cost of the gas is 12p for each unit.
There is also a fixed charge of £22.25.
Calculate the cost of the gas.

7792 - 7546 = 246

246 x 0·12 = £29·52

+ 22·25

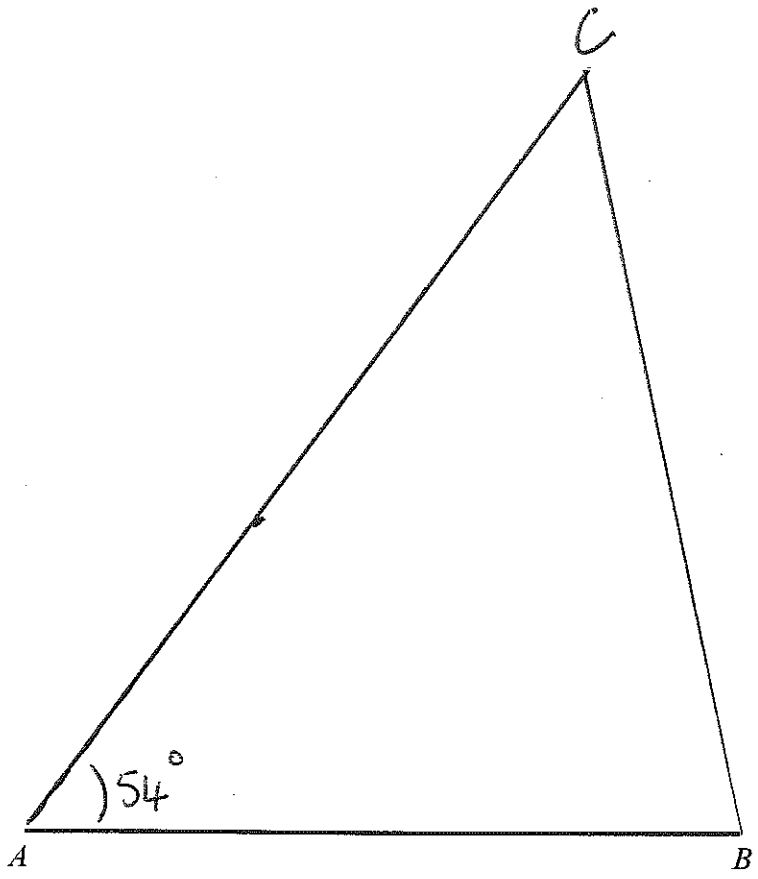
£51·77

[4]

Examiner only

8. *(a)* Complete an accurate drawing of triangle ABC in which $AB = 9{\cdot}5$ cm, $AC = 12{\cdot}6$ cm and angle $BAC = 54°$.
The side AB has been drawn for you.

[3]



(b) Measure $B\hat{C}A$.

$B\hat{C}A =$ 47° .....

[1]

Examiner only

9. The height, in centimetres, of some pupils are:

137 120 181 175 141 118 151 153

(a) Find the mean height of the pupils.

$\frac{137+120+181+175+141+118+151+153}{8} = \frac{1176}{8}$

$= 147$ cm.

[3]

(b) Find the median height of the pupils.

118, 120, 137, 141, 151, 153, 175, 181

146 cm.

[2]

(c) Find the range of the heights of the pupils.

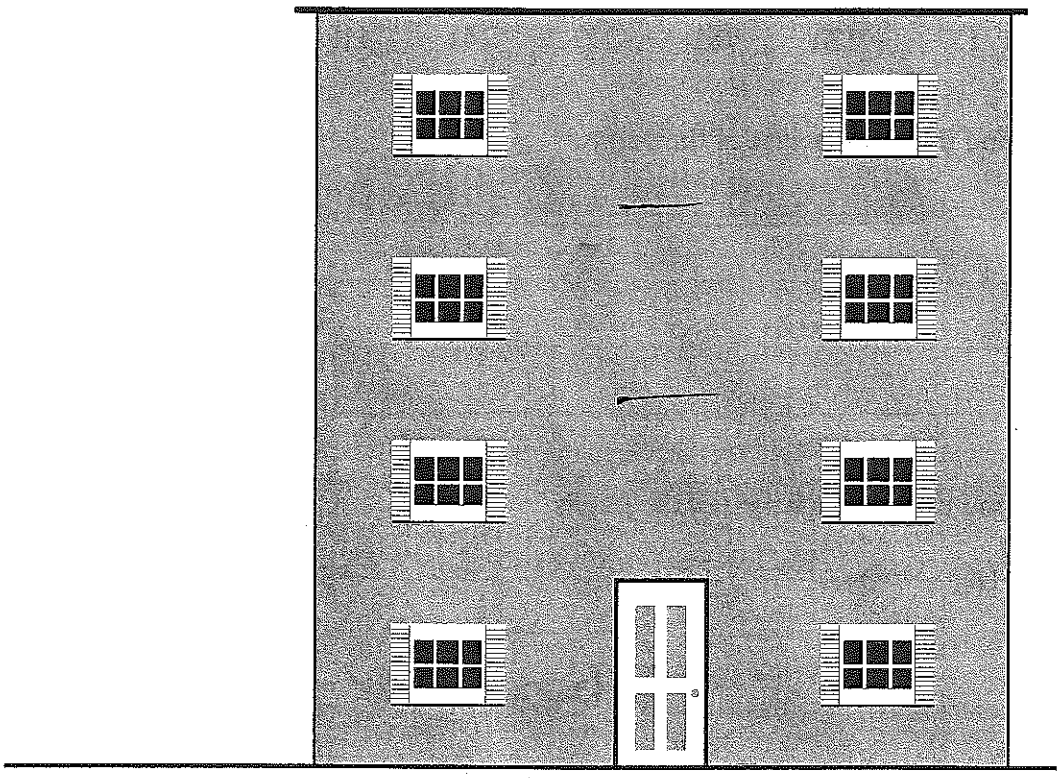
$181 - 118$

$= 63$ cm

[1]

Examiner only

10.



The above picture shows a building.

Write down an **estimate** for the **actual height** of the door. 2m

Using this estimate for the height of the door, estimate the **actual height** of the building.

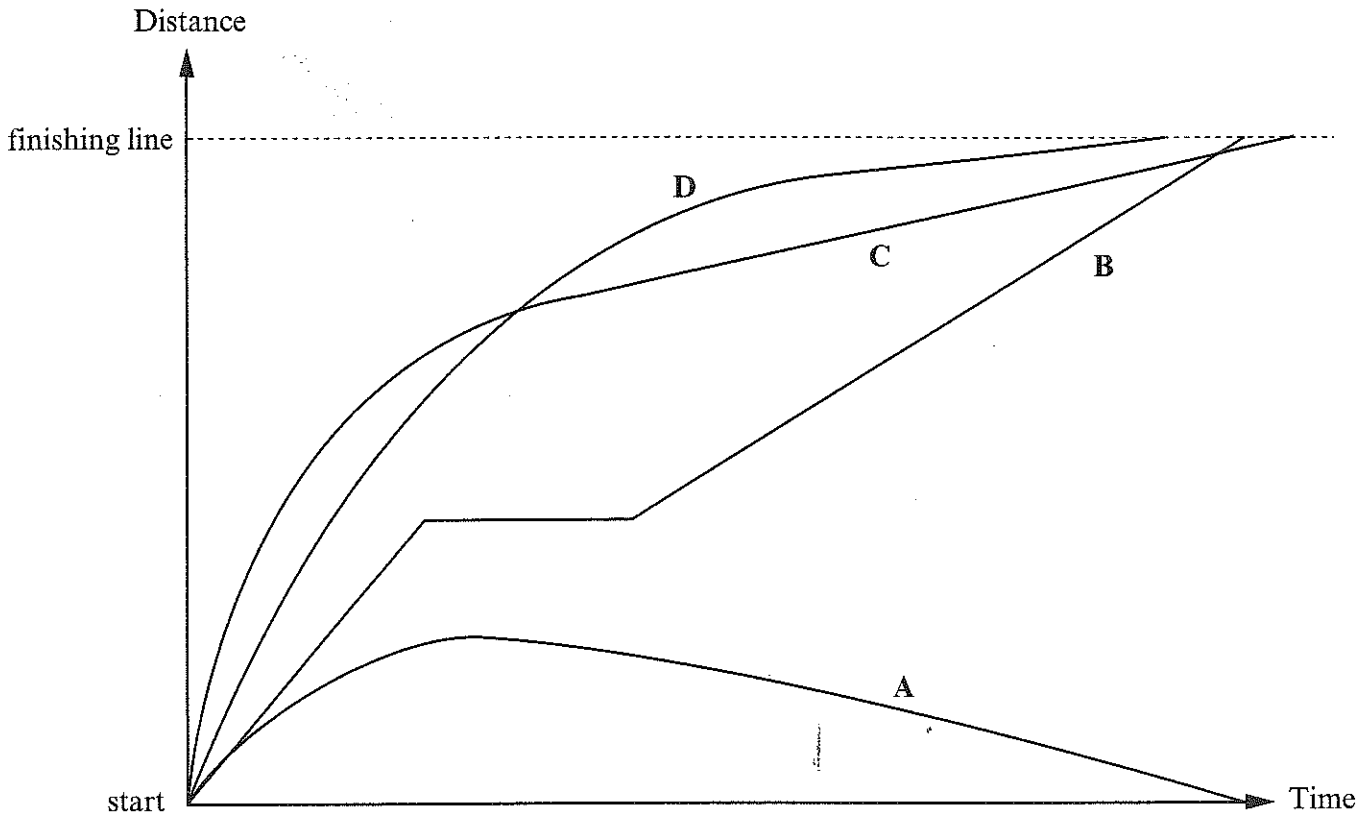
You must show all your working.

4 x 2 = 8m

[4]

Examiner only

11. Four pupils ran a race. The diagram shows their travel graphs.



(a) Who won the race? D [1]

(b) Who was in the lead in the very early part of the race? C [1]

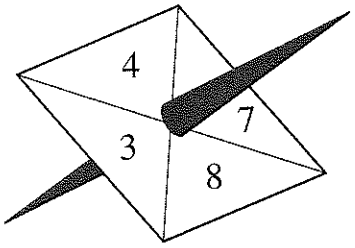
(c) Describe A's race.

started slowly + was 3rd ahead of B for a short while. Then fell back into 4th + gave up, walking back to start line.

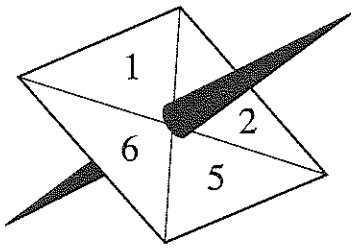
[1]

Examiner only

12. Two square shaped spinners A and B have numbers written on them.



Spinner A



Spinner B

In a game, a player spins both spinners and adds **double** the number showing on spinner A to the number showing on spinner B to get the score for the game.
For example, if the number on spinner A is 4 and the number on spinner B is 5, the player works out $2 \times 4 + 5 = 13$ and the player scores 13.

(a) Complete the following table to show all the possible scores.

Spinner B \ Spinner A	3	4	7	8
6	12	14	20	22
5	11	13	19	21
2	8	10	16	18
1	7	9	15	17

[2]

(b) What is the probability that a player scores less than 10?

$\frac{3}{16}$

[2]

(c) A player wins a prize by getting a score of less than 10.
Eighty people play the game once.
How many will be expected to win a prize?

$\frac{3}{16} \times 80$

$= 3 \times 5$

$= 15$

[2]

Examiner only

13. *(a)* Simplify $5p + p - 4p$.

$2p$

[1]

(b) Solve each of the following equations.

(i) $\frac{x}{5} = 15$

$x = 15 \times 5$

$x = 75$

(ii) $3y + 11 = 17$

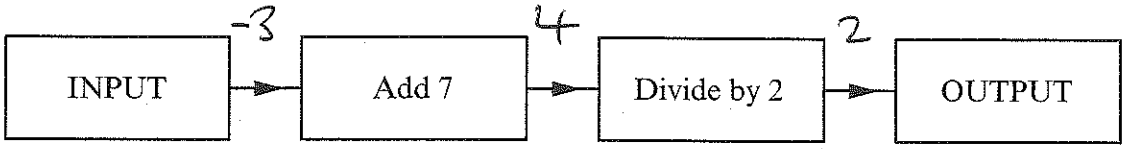
$3y = 17 - 11$

$3y = 6$

$y = \frac{6}{3}$ $y = 2$

[3]

(c) What is the output from the following machine when the input is –3?



$\frac{-3+7}{2} = 2$

[1]

(d) Use the formula $W = 2L + 3M$ to find M when $W = 35$ and $L = 4$.

$35 = 2(4) + 3(M)$

$35 - 8 = 3M$

$27 = 3M$

$9 = M$

[3]

Examiner only

14. A group of 24 adults and 25 children go to a concert.
The total cost of tickets was £488.80.
A child's ticket cost £7.60.
Find the cost of a ticket for an adult.

488·80 − 190·00 = £298·80

25 × 7·60 = £190

∴ 298·80 / 24 = £12·45

[4]

15. The number of goals scored in 40 matches were noted.
The results are summarised in the following table.

Number of goals	0	1	2	3	4
Number of matches	10	19	6	4	1

(a) What is the probability that in a randomly chosen match from this group at least 2 goals were scored?

11/40

[2]

(b) How many goals were scored altogether?

0 + (9 × 1) + (6 × 2) + (4 × 3) + (1 × 4)

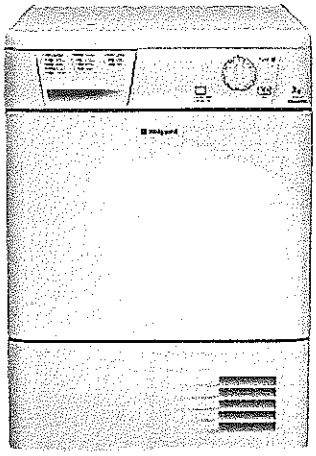
= 19 + 12 + 12 + 4

= 47

[2]

Examiner only

16. *(a)*



Tumble Drier

In store price £269
Internet price 17% off

Calculate the internet price of this tumble drier.

0.83×269

$= £223.27$

[3]

(b) Branka has 2 cats.

Each cat gets $\frac{1}{3}$ tin of food in the morning and $\frac{1}{3}$ tin of food in the evening.

How many tins does she need to buy for 5 days?

$2 \times \frac{1}{3} = \frac{2}{3}$

$2 \times \frac{1}{3} = \frac{2}{3}$

$\frac{4}{3}$ tin / day

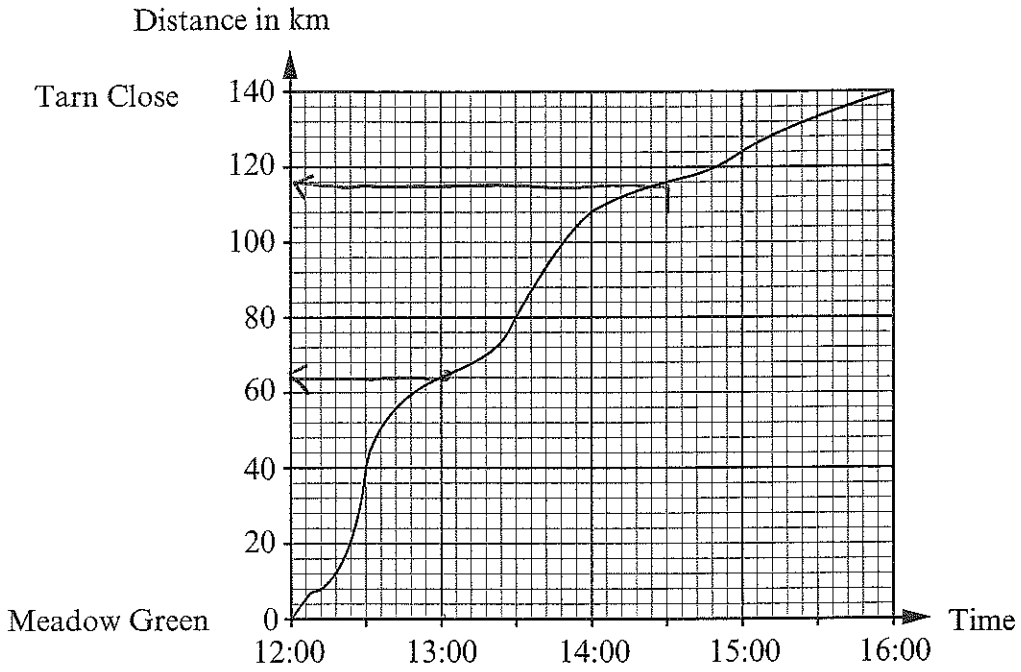
[3]

$\frac{4}{3} \times 5 = \frac{20}{3} = 6\frac{2}{3}$

$\therefore$ 7 tins needed!

Examiner only

17. The distance-time graph shows a 140 km journey from Meadow Green to Tarn Close.



(a) (i) What is the distance travelled between 13:00 and 14:30?

118 − 62

= 56 km

(ii) Find the average speed for this part of the journey.

$S = \frac{D}{T} = \frac{56}{1.5} = \frac{112}{3} = 37\frac{1}{3}$ km/h

[4]

(b) Explain how you can tell from the graph that it took less time to travel the first 70 km of the journey than it took to travel the final 70 km of the journey.

steeper graph means faster
∴ less time

[1]

Examiner only

18. *(a)* Find $\frac{14{\cdot}5 \times 33{\cdot}4}{710{\cdot}7 - 35{\cdot}9}$ correct to two decimal places.

$\frac{4843}{6748} = 0{\cdot}72$

[2]

(b) Kim bought a scooter for £1600 on 1st January 2010.
Every year the value of the scooter depreciates by 8% of its value at the start of the year.
Find the value of the scooter on 1st January 2012.

$1600 \times 0{\cdot}92^2 = £1354{\cdot}24$

[4]

Examiner only

19. The exchange rate for buying Canadian dollars ($) at an exchange bureau is $1.64 for £1.
Carys only has £700 to exchange into Canadian dollars.
The lowest Canadian dollar notes the exchange bureau has are $50 notes.

How many Canadian dollars can Carys buy and how much will this cost her?
You must give the units of your answer.

$700 \times 1.64 = \$1148$

$\therefore$ change $\$1100$ (Buys)

$\frac{1150}{1.64} = £701.22$ £670.73

[6]

Examiner only

20. *(a)*

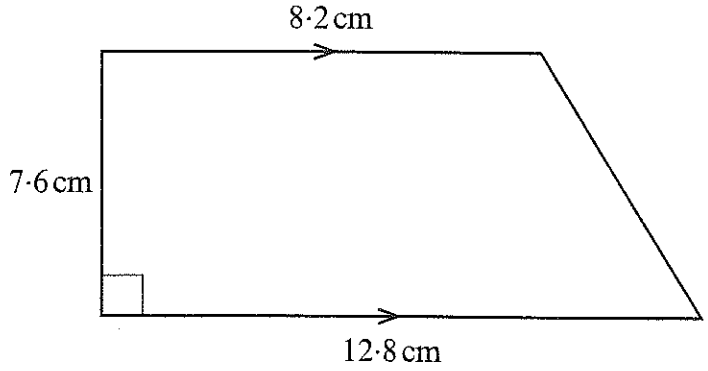


Diagram not drawn to scale

Calculate the area of the trapezium.

$A = \frac{(a+b)h}{2}$

$A = \frac{(8{\cdot}2+12{\cdot}8)}{2} \times 7{\cdot}6$

$A = \frac{21 \times 7{\cdot}6}{2}$

$A = 79{\cdot}8\ cm^2$

[2]

(b) Calculate the area of a semicircle with a diameter of 44·8 cm.

$A = \frac{\pi r^2}{2}$

$A = \frac{3{\cdot}14 \times 22{\cdot}4^2}{2}$

$A = 787{\cdot}76\ cm^2$

[3]