Candidate Name	Centre Number					Candidate Number				
Mel@JustMaths						0				

SOLUTIONS

GCSE

MATHEMATICS - NUMERACY

UNIT 2: CALCULATOR-ALLOWED
FOUNDATION TIER

SPECIMEN PAPER SUMMER 2017

1 HOUR 30 MINUTES

ADDITIONAL MATERIALS
A calculator will be required for this paper.
A ruler, protractor and a pair of compasses may be required.

INSTRUCTIONS TO CANDIDATES
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 in this booklet.

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 when appropriate.

Unless stated, diagrams are not drawn to scale.

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

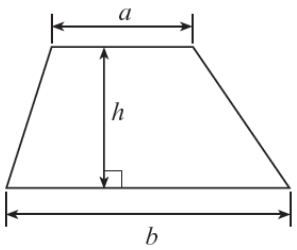
For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	**7**	
2.	**3**	
3.	**6**	
4.	**4**	
5.	**5**	
6.	**7**	
7.	**7**	
8.	**2**	
9.	**4**	
10.	**3**	
11.	**7**	
12.	**4**	
13.	**6**	
TOTAL	**65**	

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

The assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing in question **6.**

Formula list

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



1. Nicole is planning a charity bike ride.

Nicole has to buy some new equipment so that she can take part in the bike ride.
She sees the following items on the Internet.

Pair of Shorts £40.50 	Pair of Gloves £22.49 	Water Bottle £6.12 
Pair of Shoes £79.95 	Helmet £56.50 	Sunglasses £20.79 

(a) Nicole buys a pair of gloves, 3 water bottles, a pair of shoes and 2 pairs of shorts.
Complete the following table to show her bill for these items. [4]

Item	Cost
Pair of gloves	£22.49
3 water bottles 6·12 ×3	18·36
Pair of shoes	79·95
2 pairs of shorts 40·50 ×2	81·00
Total	£ 201·80

(b) The Internet company gives Nicole a 5% discount off her total bill.
How much does Nicole pay for her items after the discount has been given? [3]

201·80 × 0·95 = £191·71

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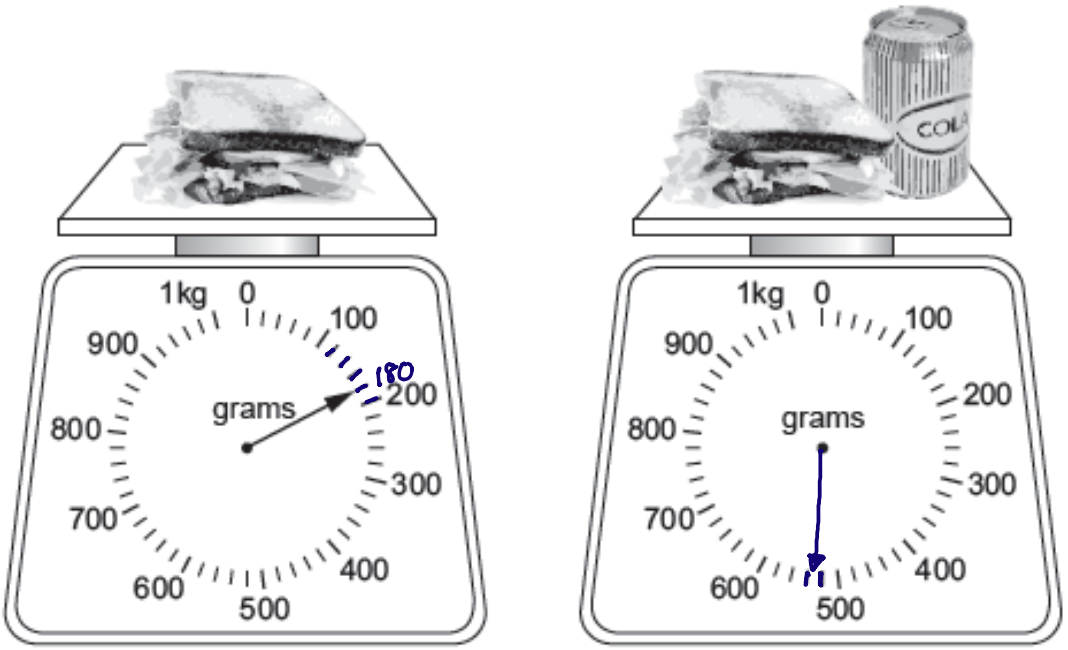
2. Rhys decides to weigh his packed lunch.
The pointer on the first scale shows the weight of his sandwich.
His drink weighs 350 grams.
Draw a pointer on the second scale to show the total weight of his sandwich and his drink. [3]



180 + 350 = 530

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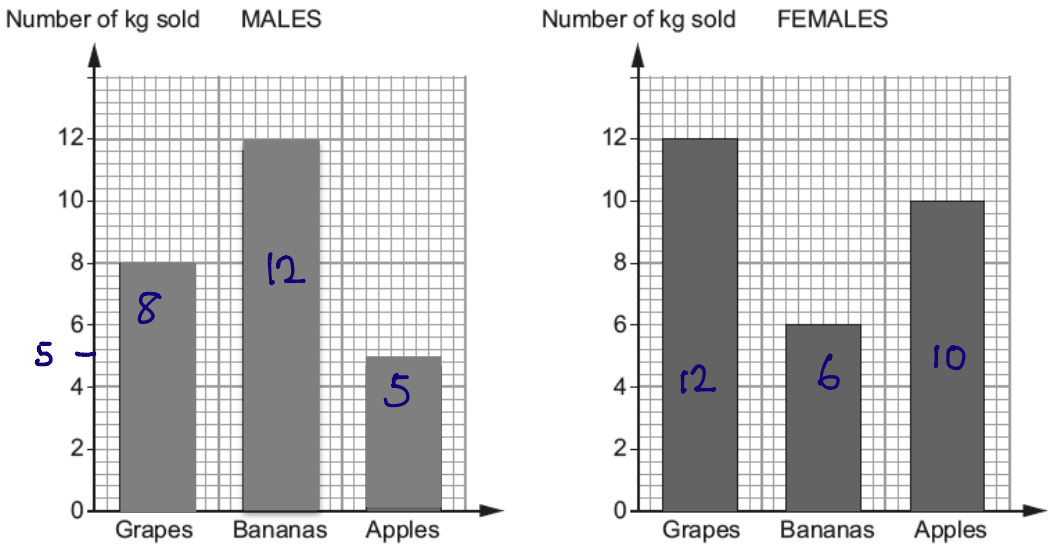
3. A fruit shop owner is looking at the buying habits of male and female customers. The bar charts show the quantity of fruit sold, in kg, to males and to females separately last Tuesday.



(a) Complete the statements below about the fruit sold last Tuesday. [3]

The total weight of apples sold is ..15.. kg.

The total weight of grapes, bananas and apples sold to females is ..28.. kg.

Females bought ..4.. kg more grapes than males.

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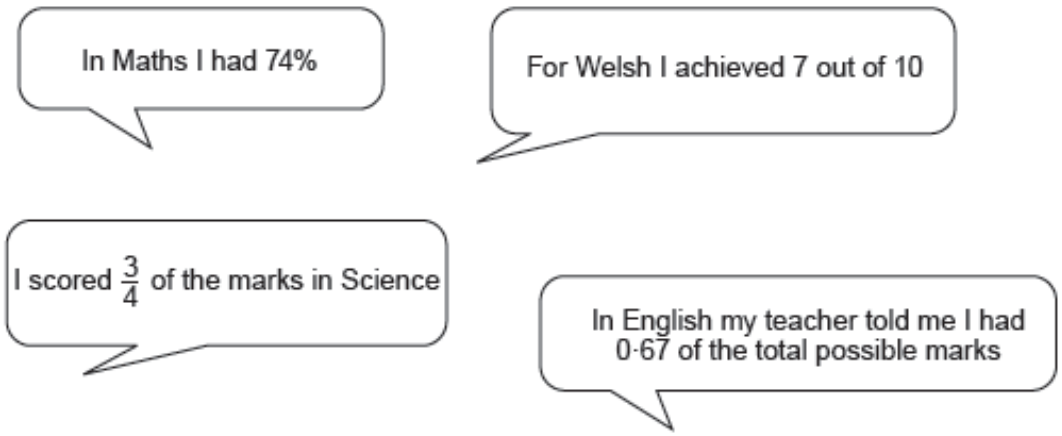
(b) (i) The owner says that the most popular fruit is bananas.
She is incorrect.
What may have misled the owner to say this? [1]

she has only looked at the males

(ii) Use the graphs, showing your calculations, to convince the owner that she is incorrect. [2]

Total grapes = 20kg
bananas = 18kg Grapes are the most popular
Apples = 15kg

4. At the end of term, Jac had tests in four of his subjects.
This is what he said about his results



(a) For Jac to compare all of his results he needs to write them as percentages.
Change his results into percentages and complete the table below. [3]

Subject	Result as a percentage
Mathematics	74%
Welsh	7/10 = 70%
Science	75%
English	0·67 67%

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(b) In which subject did Jac have the highest percentage? [1]

Science

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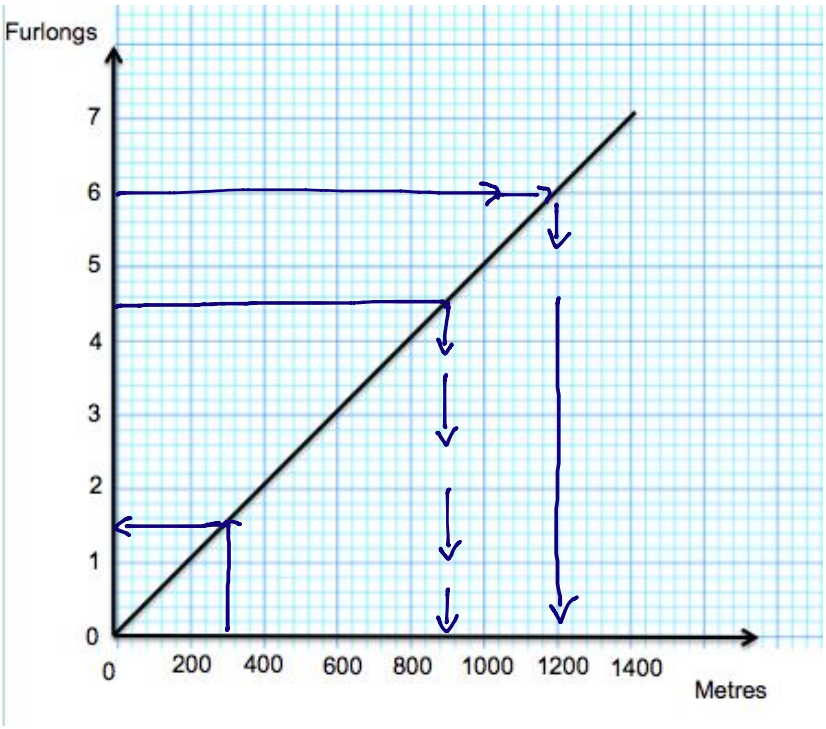
5. Horse-racing tracks are often measured in furlongs.
The conversion graph below shows furlongs and metres.



(a) Complete the following statements. [3]

A track measuring 6 furlongs is approximately ..1200.. metres.

A track measuring 4·5 furlongs is approximately ..900.. metres.

A track measuring 300 metres is approximately ..1·5.. furlongs.

(b) Harry needs to know the length, in metres, of a 10-furlong track.
How can the conversion graph be used to help Harry find an answer?
You must explain any calculations and give an answer. [2]

1 furlong = 200m (×10)
10 furlongs = 2000m (×10)

10 furlongs is approximately ..2000.. metres

6. *You will be assessed on the quality of your organisation, communication and accuracy in writing in this question.*

A gardener wishes to place new fencing around his rectangular vegetable garden.

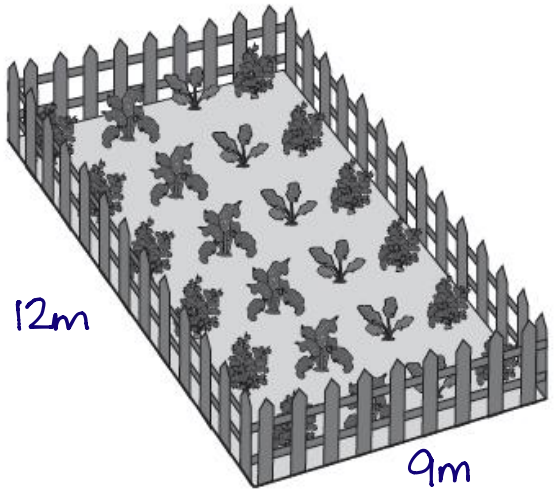


Diagram not drawn to scale

The garden is 12 metres long and 9 metres wide.
Each fence panel is 3 metres long and costs £21.98.
Find the total cost of the fence panels for the rectangular vegetable garden.
You must show all your working. [7]

12 + 9 + 12 + 9 = 42m

42 ÷ 3 = 14 panels

14 × 21·98 = £307·72

7.

	Grapes £3.40 per kg
	Bananas £2.70 per kg
	Apples £1.80 per kg

(a) The price of 1kg of bananas is due to be increased by either $\frac{1}{3}$ or 30%.

(i) How much would 1kg of bananas cost if the price was increased by $\frac{1}{3}$?
Circle your answer [1]

£4.05 £3.06 £3.60 £3.51 £2.97

(ii) How much would 1kg of bananas cost if the price was increased by 30%?
Circle your answer. [1]

£3.15 £10.80 £3.60 £3.51 £2.97

(b) The price of 1 kg of apples is to be reduced by $\frac{2}{5}$. = 40%

Calculate the new price of 1kg of apples. [2]

1·80 x 0·6 = £1·08

(c) The price of peaches is not given in the table.
Rowena buys 0·4kg of grapes and 0·5kg of peaches.
It costs her £3.46 altogether.
What is the price of 1kg of peaches? [3]

3·40 x 0·4 = 1·36

3·46 - 1·36 = £2·10 → 0·5kg

x2

£4·20 per kg of peaches

8. There were 32 rugby players in the 2013-2014 Wales rugby squad.
The mean height of these rugby players was 189 cm.

Circle either TRUE or FALSE for each of the following statements. [2]

All the rugby players in the squad must have been taller than 189 cm.	TRUE	FALSE
If there was a rugby player of height 191 cm in the squad, there must have been a rugby player of height 187 cm.	TRUE	FALSE
The majority of the rugby players in the squad must have been of height 189 cm.	TRUE	FALSE
If some of the rugby players in the squad were taller than 189 cm, then some must have been shorter than 189 cm.	TRUE	FALSE
Half the rugby players in the squad must have been shorter than 189 cm, and half of the rugby players in the squad must have been taller than 189 cm.	TRUE	FALSE

9. Siôn has gone to a travel agent to book a 7-day holiday at a Spanish resort for July 2016.

He has the following two **definite** requirements:

- He can only be away on holiday between 2 July 2016 and 23 July 2016.
- His flight must land in Malaga.

He would like to have as many as possible of the following four **preferred** conditions met:

- To fly from Cardiff Wales Airport.
- Depart on a Monday.
- Departure time to be before 10:00 a.m.
- The hotel to have a 3-star (***) rating.

Using the following information, choose the best two options from the eight holiday packages listed (Package A to Package H).
His definite requirements **must** be met and **as many as possible** of his preferred conditions should also be met. [4]

July 2016						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Hotel	Star Rating
Castilla	* * *
Nou Sol	* * *
Costa Park	* *
Fiesta	* *

Package	Flights		Depart		Return		Hotel
	From	To	Date	Time	Date	Time	
A	Manchester	Malaga	11/7/16	14:00	18/7/16	23:00	*Castilla*
B	Manchester	Malaga	4/7/16	09:30	11/7/16	15:00	*Nou Sol*
C	Manchester	Malaga	5/7/16	06:30	12/7/16	15:00	*Costa Park*
D	Manchester	Seville	4/7/16	08:00	11/7/16	12:30	*Nou Sol*
E	Cardiff	Malaga	18/7/16	07:30	25/7/16	14:00	*Castilla*
F	Cardiff	Malaga	6/7/16	10:05	13/7/16	14:00	*Fiesta*
G	Cardiff	Malaga	11/7/16	17:00	18/7/16	22:00	*Castilla*
H	Cardiff	Malaga	9/7/16	09:45	16/7/13	05:30	*Costa Park*

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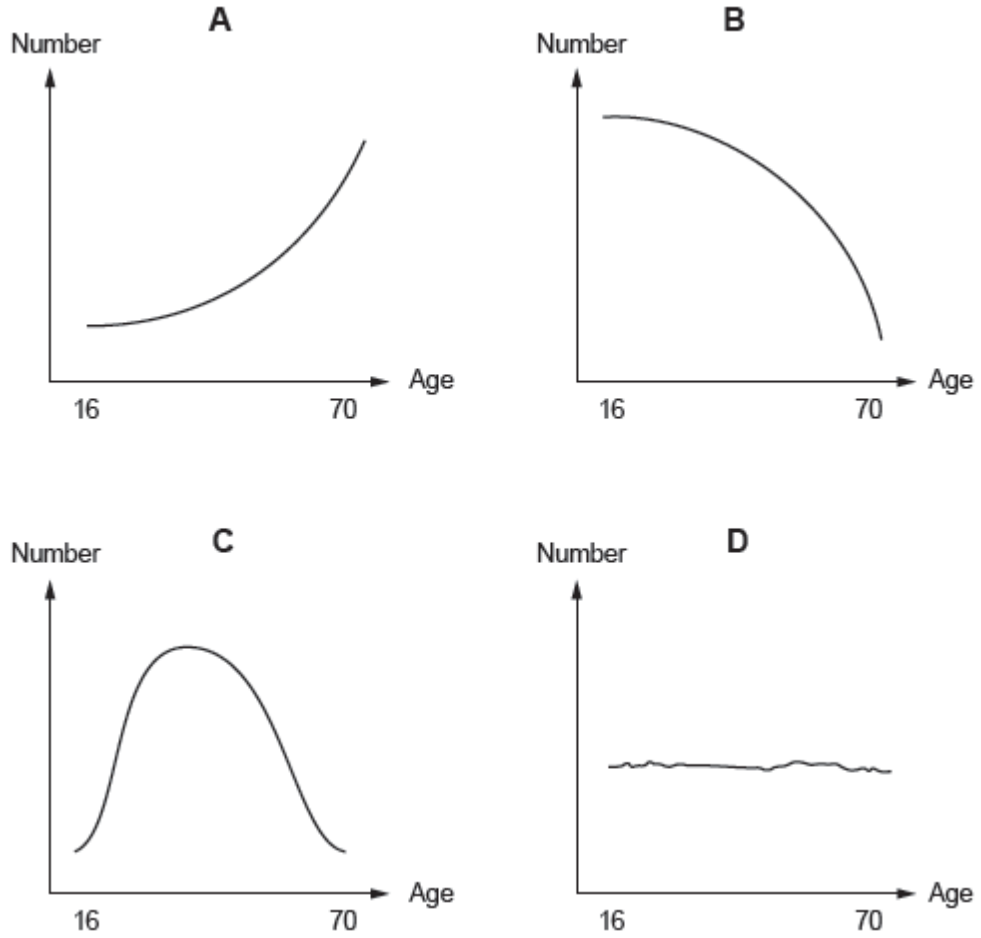
Allowing for as many of his preferred conditions as possible, the two best options for Siôn are:

Package ..... B ..... and Package ..... G .....

10. Look at the four graphs labelled **A**, **B**, **C** and **D,** shown below.



Write down which graph **A**, **B**, **C** or **D**, in each case, is most likely to have the following titles.

[3]

'The number of people in full-time employment.' Graph C

'The number of people who play for a football team.' Graph B

'The number of people who wear glasses.' Graph A

'The number of people who are left-handed.' Graph D

11. *(a)* Gemma bought a tablet last year for £240.
She sold it to a friend after a year for 35% less than she paid for it.

She sees a new tablet on sale for £365 with a special offer of '20% off'.
Gemma decides to use the money she has from selling her old tablet towards buying this new one.

How much extra will Gemma have to pay towards the new tablet using the special offer?
You must show all your working [6]

100% - 35% = 65% = 0·65

240 x 0·65 = 156

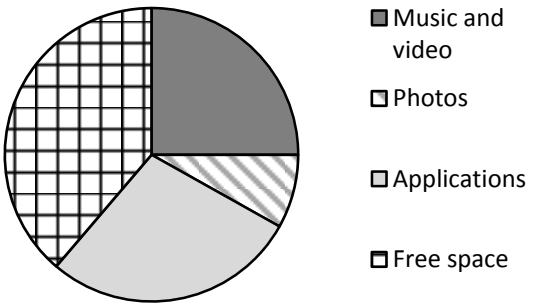
365 x 0·8 = £292

Extra money needed 292 - 156

= £136

(b) Gemma's old tablet had a memory capacity of 16 GB.
Gemma stored music and videos, photos and applications on her tablet.
The table and pie chart below show the memory status of her 16 GB tablet.

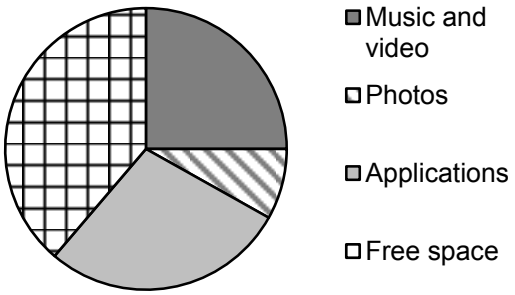
Music and videos	4 GB
Photos	1·3 GB
Applications	4·5 GB
Free space	6·2 GB



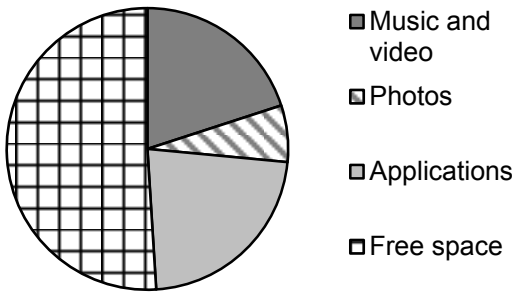
Gemma's new tablet has a memory capacity of 32 GB.
Gemma transfers the content of her old tablet to the new one.

Which one of the following graphs represents her new tablet's memory status? [1]
Circle **A**, **B**, **C** or **D**.

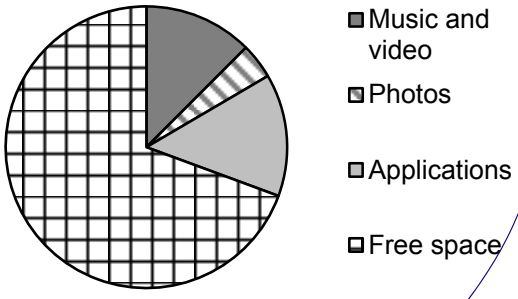
A



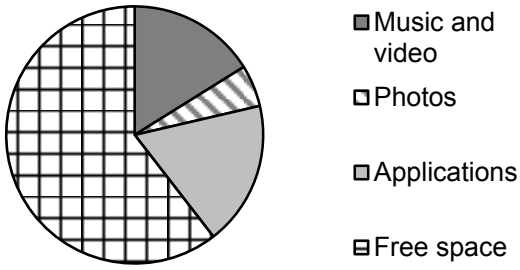
B



C



D



12. A plot of land labelled *ABCD* is shown below.
AB is parallel to *DC* and *BC* is perpendicular to *AB*.
AB = 100 metres and *DC* = 40 metres.

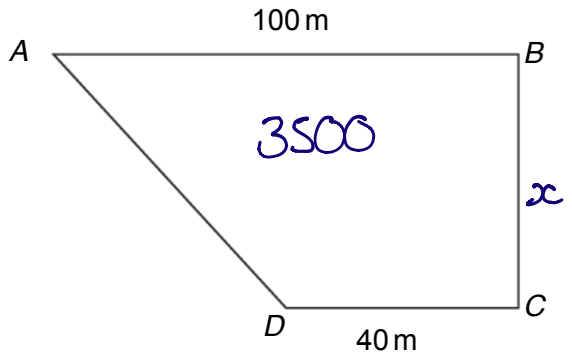


Diagram not drawn to scale

The area of this plot of land is 3500 m^2.
A cable is to be laid from point *B* to point *C*.
Calculate the length of this cable. [4]

$3500 = \frac{1}{2}(40+100) \times x$

$3500 = 70x$

$x = 50m$

13. Caer Parc, Hawdon and Trebach are three bus stations.
Buses operate through the day, but no buses are timetabled to leave Caer Parc after 22:30.

Buses leave Caer Parc to Hawdon every 24 minutes.
Buses leave Caer Parc to Trebach every 18 minutes.

The first buses of the day from Caer Parc going to Hawdon and Trebach both leave at 06:00.

When is the last time that day that buses to Hawdon and Trebach both leave at the same time from Caer Parc? [6]

Hawdon 24mins 06:00 6:24 6:48 7:12 7:36 8:00

Treboch 18mins 06:00 6:18 6:36 6:54 7:12 7:30

every 72 minutes...

6:00 7:12 8:24
9:36 10:48 12:00
1:12 2:24 3:36
4:48 6:00 7:12
8:24 9:36 ~~10:48~~ too late

The latest bus is at 21:36