Surname	Centre Number	Candidate Number
Other Names		0

GCSE

3310U20-1

S19-3310U20-1

MATHEMATICS – NUMERACY
UNIT 2: CALCULATOR-ALLOWED
FOUNDATION TIER

THURSDAY, 9 MAY 2019 – MORNING

1 hour 30 minutes

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

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01

ADDITIONAL MATERIALS

A calculator will be required for this paper.

A ruler, a protractor and a pair of compasses may be required.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

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.

If you run out of space, use the continuation page at the back of the booklet. Question numbers must be given for the work written on the continuation page.

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.

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

In question **4**, the assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing.

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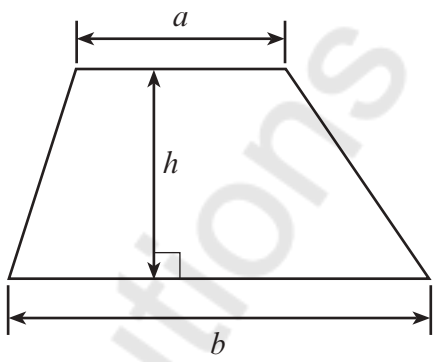
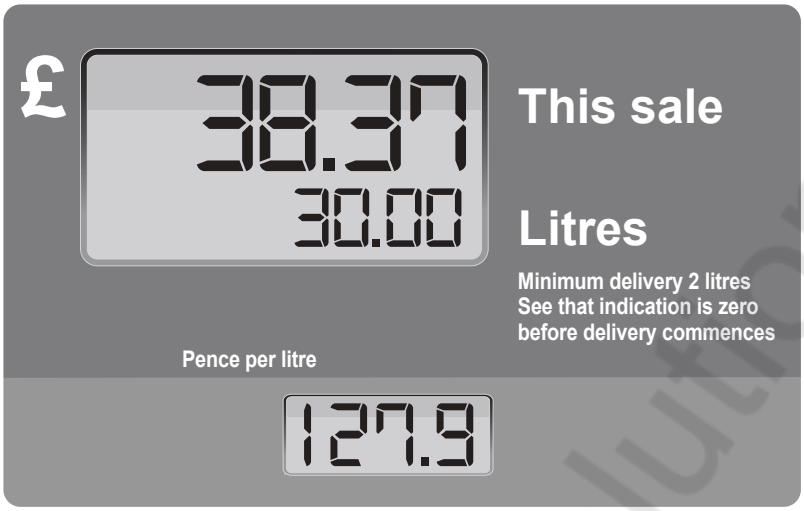
Formula List - Foundation Tier

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



Examiner only

1. Geraint went to a petrol station and put petrol in his car.
This was the display on the petrol pump.



Geraint put 30 litres of petrol in his car.
The price of petrol was 127.9 pence per litre.
The cost of the petrol was £38.37.

(a) The following week the price of petrol was 128.9 pence per litre.
Geraint put 40 litres of petrol in his car.
What was the cost of the petrol?
Give your answer in **pounds** (£). [3]

128.9 × 40 = £51.60 5160p

Cost of 40 litres of petrol was £ 51.60

(b) The display below shows the cost of 35 litres of petrol.
Calculate the price per litre of petrol.
Give your answer in pence. [3]

This Sale £	44.38
Litres	35.00
Pence per litre	126.80

$\frac{44.38 \times 100}{35}$ = 126.8p

Examiner only

2. In 2011, the number of people able to speak Welsh, and the number of people not able to speak Welsh, in each local authority in Wales were recorded.
The table below shows some of this information.

Local authority	Able to speak Welsh	Not able to speak Welsh	Total
Isle of Anglesey	38 568	28 835	67 403
Gwynedd	77 000	40 789	117 789
Denbighshire	22 236	68 291	90 527
Flintshire	19 343	127 597	
Powys	23 990	105 093	129 083
Ceredigion	34 964	38 883	73 847
Pembrokeshire	22 786	95 606	118 392
Swansea		204 823	231 155
Cardiff	36 735	295 538	332 273
Caerphilly	19 251	152 721	171 972
Newport	13 002	126 847	139 849

(a) What is the number of people **not able** to speak Welsh in Ceredigion written correct to the nearest **thousand**?
Circle your answer. [1]

39,000

40 000 39 000 38 900 38 000 38 800

(b) How many people were **able** to speak Welsh in Caerphilly?
Write your answer in words. [2]

Nineteen thousand two hundred and fifty one

(c) How many people were **able** to speak Welsh in Swansea?
Circle your answer. [1]

435 978 204 823 231 155 26 332 22 786

231 155
− 204 823
26 332

Examiner only

(d) In total, how many people lived in Flintshire?
Circle your answer. [1]

127 597 129 083 19 343 108 254 146 940

19 343
+127 597

146 940

(e) The Welsh Government wants to increase the number of people able to speak Welsh.
Its target is **one million** people by the year 2050.
In 2011, it was recorded that there were 562 016 people able to speak Welsh in Wales.

How many more people able to speak Welsh are needed in Wales by 2050 for the Welsh Government to hit this target? [2]

1,000,000 − 562,016

437,984 are needed

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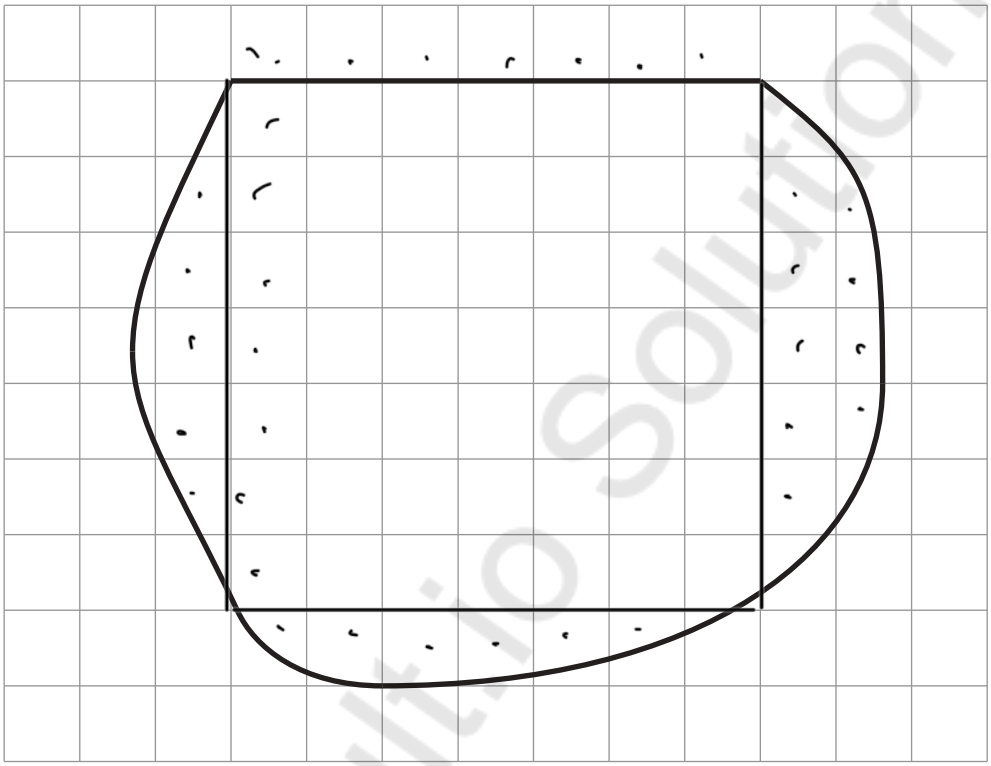
3. Mr Owen wants to tidy up his garden.

(a) The shape below is the outline of Mr Owen's garden drawn to scale on a square grid.
The scale of the drawing is 1 cm represents 1 m.

Scale: 1 cm represents 1 m



7×7
49
20
69 m²

Mr Owen pays a gardener £12.50 per m^2 to prepare the garden.
Calculate how much Mr Owen pays the gardener. [4]

12·50 × 69
= £862.5

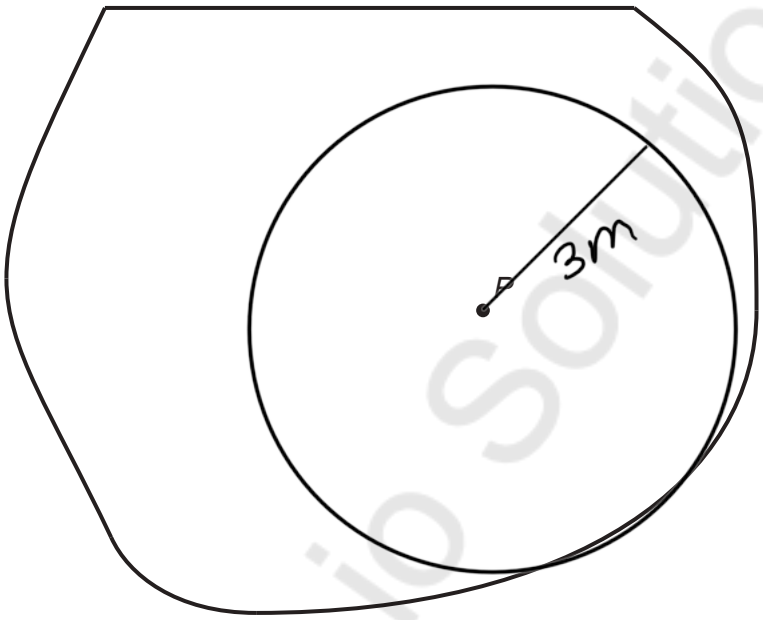
Mr Owen pays the gardener £ 862·5

Examiner only

(b) Mr Owen wants a circular patio in his garden.
The radius of the patio is 3 m.
P is the centre of the patio.

Using a pair of compasses, draw the patio on the scale drawing of the garden below. [2]

Scale: 1 cm represents 1 m



3X2

(c) What is the diameter of the patio?
Circle your answer. [1]

1·5 m 12 m 3 m **(6 m)** 9 m

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.....

Examiner only

4. *In this question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

140 pupils are going to a concert.
The table below shows the cost of the different types of ticket.

Ticket	Cost per ticket
SEATED	£84.50
STANDING	£49.50

Of these 140 pupils:
- 35% have bought SEATED tickets,
- the remaining pupils have bought STANDING tickets.

Calculate the total cost of the tickets bought by the 140 pupils.
You must show all your working. [6 + 2 OCW]

$\frac{35}{100} \times 140 = 49 \times 84.50$

$140 - 49 = 91 \times 49.50$

4140.50
$+ 4504.50$
$£8644.00$

£8644

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Examiner only

5. Here is a diagram of a snooker table.
The dotted lines on the diagram show the path of a ball as it bounces off the side of the table.

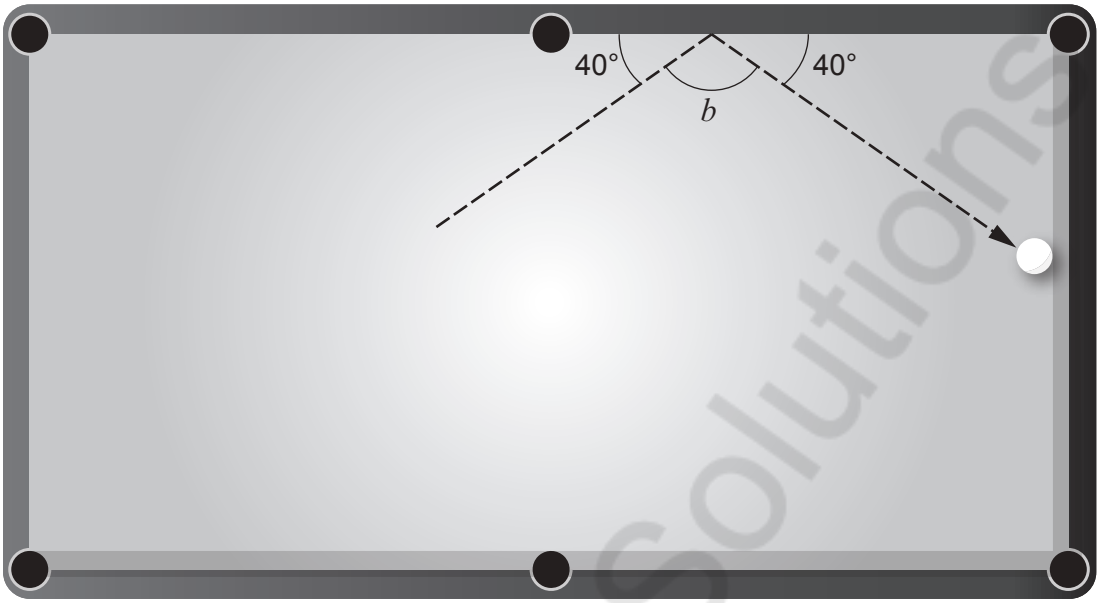


Diagram not drawn to scale

(a) Find the size of angle b. [2]

$b = 180° - (40 + 40)$

$180 - 80$

$b = 100°$

(b) What is the special name given to angle b? [1]

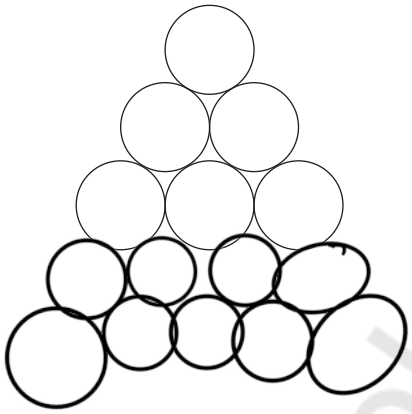
right angle | obtuse angle | acute angle | reflex angle | straight angle

$> 90°$

$< 180°$

Examiner only

All the red balls at the beginning of a snooker game are placed on the table in the shape of an equilateral triangle.
Here is **part** of the pattern of how the red balls are placed.
There are **5 rows** of red balls in the complete pattern.



1
2 +
3 +
4 +
5 +
= 15

(c) Denise says,
"There are 15 red balls on the table at the beginning of a snooker game".

Using the pattern of balls above, show that Denise is correct. [1]

1 + 2 + 3 + 4 + 5 = 15

Denise was correct

(d) There are 22 balls on the table at the beginning of a snooker game.
15 of the balls are red.
Denise picks one ball, at random, from the table at the beginning of a game.
Which of the words below describes the chance that she will pick a red ball?
Circle your answer. [1]

certain (likely) even chance unlikely impossible

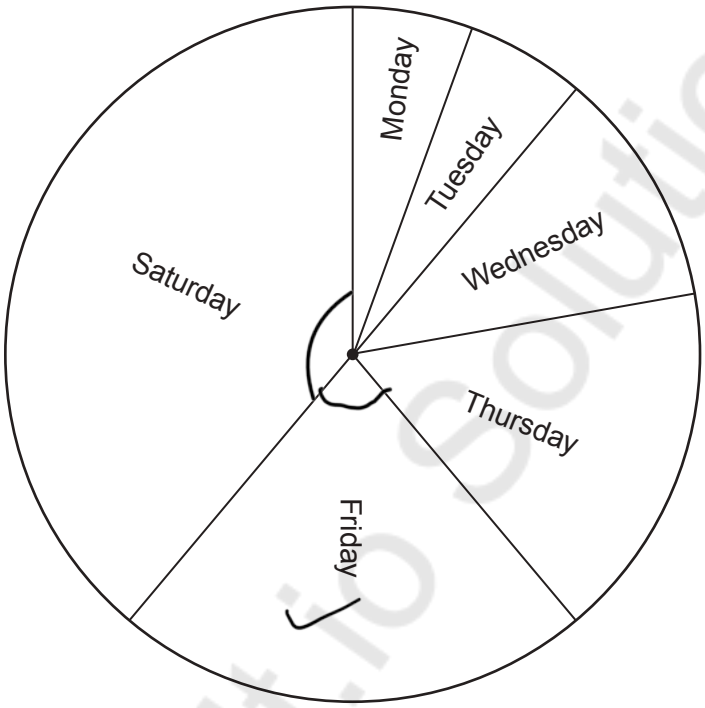
$\frac{15}{22}$

Examiner only

6. Ian owns two shops. One is in Ffordd Owain and the other is in Arthur Avenue.
For each shop, Ian has been presented with the sunglasses sales for last week.

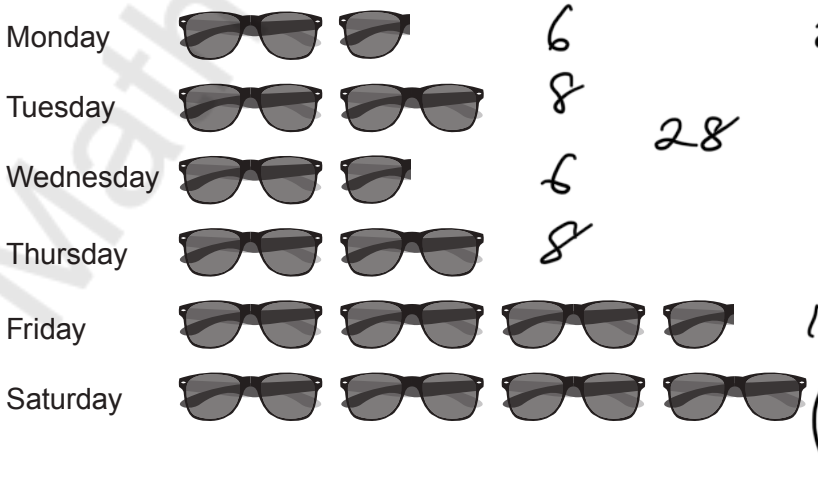
Ffordd Owain daily sunglasses sales for last week

In total, 90 pairs of sunglasses were sold.



Arthur Avenue daily sunglasses sales for last week

Key:  represents 4 pairs of sunglasses



Examiner only

(a) For each shop, what fraction of the sunglasses sold last week was sold on Friday? Express your answers as fractions in their simplest terms.

(i) Ffordd Owain: [2]

$\frac{80}{360}\ \frac{20}{90} = \frac{20}{90} = \frac{2}{9}$

Fraction, in its simplest terms $\frac{2}{9}$

(ii) Arthur Avenue: [2]

$\frac{14}{58}\ \frac{7}{29} = \frac{7}{29}$

Fraction, in its simplest terms $\frac{7}{29}$

(b) At the Arthur Avenue shop, what percentage of the sunglasses sold last week was sold on Tuesday? [2]

$\frac{4}{29}\ \frac{8}{58} \times 100$

$= 13.79\%$

(c) On Saturday, how many more sunglasses were sold in the Ffordd Owain shop than in the Arthur Avenue shop? [5]

$\frac{140}{360} \times 90$

$= 35$ pairs

$35 - 16$

Difference $= 19$ pair of sunglasses

Examiner only

7. *(a)* Edmund needs carrots to make soup.
His two local supermarkets are *SuperM* and *FairMart*.

450 g of carrots cost 27p in *SuperM*.
The same variety of carrots cost 57p per kg in *FairMart*.

Edmund wants to buy carrots that are the best value for money.
Should he buy carrots from *SuperM* or from *FairMart*?
Give a reason for your answer.
You must show all your working. [3]

450g = 27p
1kg = 57p

1000g = 1kg

SuperM
450g = 27p
1000g = x
20
$x = \frac{1000 \times 27}{450}$
3
15
1kg = 60p

60p > 57p

Buying carrots from FairMart has better value for money

Examiner only

(b) Edmund plans to use the recipe shown to make soup.

Carrot soup, serves 4 people

450g carrots
0·8 litres stock
4 tablespoons of cream
2 onions

He starts to write the recipe for serving 25 people.

Carrot soup to serve 25 people

2812.5	g carrots
5	litres stock
25	tablespoons of cream
13	**whole** onions

Edmund does not want part of an onion left over.
Complete the recipe for Edmund. [3]

Examiner only

8. Rhys lives in St Asaph.
He wants to video call friends in Montreal, New Delhi and Sydney.

(a) The table below shows times around the world when it is 12:30 in St Asaph.

City	Time	Day
St Asaph	12:30	Saturday
Montreal	07:30	Saturday
New Delhi	17:00	Saturday
Sydney	21:30	Saturday

5hrs

(i) When it is 23:30 on Saturday in St Asaph, what time and day is it in Montreal?
Circle your answer. [1]

04:30, Sunday 07:30, Saturday **18:30, Saturday**

02:30, Saturday 12:30, Saturday

.....

.....

(ii) When it is 01:00 on Sunday in Sydney, what time and day is it in St Asaph?
Circle your answer. [1]

16:00, Sunday **16:00, Saturday** 10:00, Sunday

10:00, Saturday 06:00, Monday

.....

.....

(b) 1 Australian dollar (AUD) is worth £0.61.

How much is £320 worth in Australian dollars?
Give your answer to the nearest Australian dollar. [2]

1 — 0.61
x — 320
320 / 0.61
= 524.59 AUD
≈ 525 AUD

.....

.....

£320 = 525 AUD

Examiner only

9.

Ice skate hire charges

Hire any pair of ice skates for £3.25
PLUS
£2.40 for every hour or part of an hour hired*

*any minute or more into the next hour is charged as 1 hour

(a) Bryn returns his hired ice skates after 3 hours 38 minutes.
How much will the total charge be for hiring these ice skates? [2]

3 hr 38 mins → 4 hrs

$3.25 + 2.4(4)$

$= £12.85$

(b) Beth pays £8.05 to hire ice skates.
What is the minimum whole number of minutes that she could have hired the ice skates for before returning them? [3]

$8.05 - 3.25$

$= £4.80$

$\frac{4.8}{2.4} = 2$ hour

maximum = 2 hours

minimum: 1st hour = 60 mins

2nd hour = 1 min → 60 mins

minimum: $60 + 1 = 61$ mins

61 minutes

Examiner only

10. *(a)* A survey was carried out to find out how often people used the swimming pool in a sports centre.
The following two questions were asked in a questionnaire.

> Q1. How far away from the sports centre do you live?
>
> Q2. How often do you go swimming?

(i) Give **one** reason why question 1 is a useful question to ask. [1]

to find out if the sports centre is too far to go swimming

(ii) Explain why the answers to question 2 might be difficult to analyse. [1]

It is not specific / it is vague

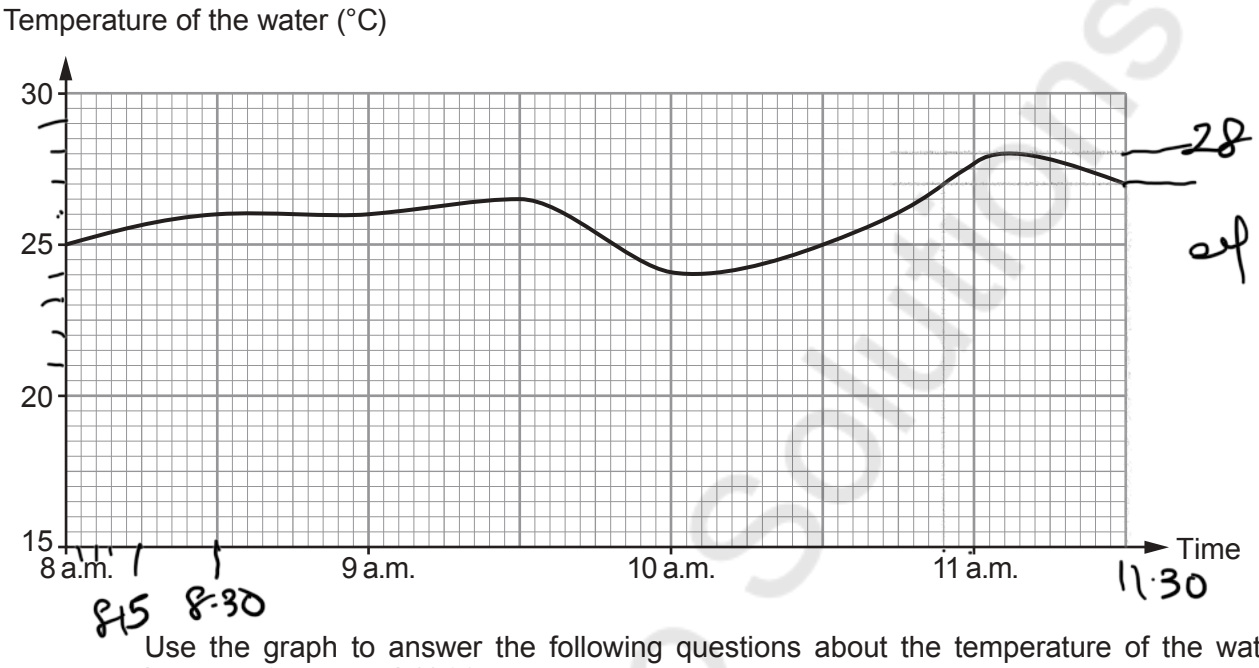
(iii) A person answers that they go swimming.
Write a question that could be used to find out how long this person spends in the pool, on average, each time they go swimming.
You must give groups for collecting the data. [2]

Question:

< 20mins, 20mins to 1hr, > 1hr.

Examiner only

(b) Jamil works at the *Hafan Parc* swimming pool.
He records the temperature of the water in the pool from 8 a.m. to 11:30 a.m.
Jamil draws the following graph.



Use the graph to answer the following questions about the temperature of the water between 8 a.m. and 11:30 a.m.

(i) What is the range of the temperature of the water? [1]

28 − 24 = 4°C

(ii) For swimming, the most suitable temperature of the water in the pool is between 27°C and 28°C inclusive.
Find the length of time that the water in the pool was most suitable for swimming.
Give your answer in minutes. [1]

30 + 6
36 mins

The water was most suitable for 36 minutes

END OF PAPER

Question number	Additional page, if required. Write the question number(s) in the left-hand margin.

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