**wjec cbac**

## GCSE – NEW

### 3310U20-1

A16-3310U20-1

## MATHEMATICS – NUMERACY
### UNIT 2: CALCULATOR-ALLOWED
### FOUNDATION TIER

FRIDAY, 4 NOVEMBER 2016 – MORNING

1 hour 30 minutes

### 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 in this booklet.

If you run out of space, use the continuation page at the back of the booklet, taking care to number the question(s) correctly.

Take $\pi$ as 3·14 or use the $\pi$ 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 **2***(b)*, the assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing.

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

3310U201 01

**Formula List - Foundation Tier**

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

(3310U20-1)
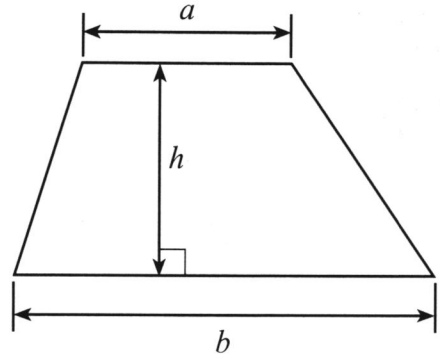
**1.** *(a)* A map of Anglesey is drawn on the grid below.
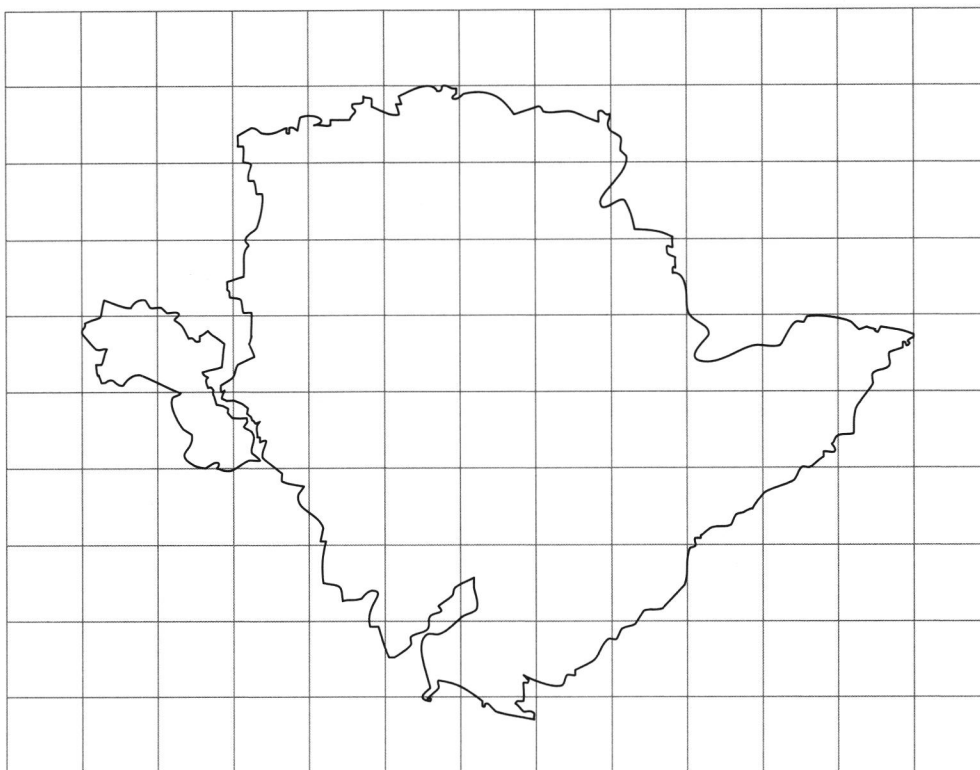


Each square on the grid represents an area of **16 km$^2$**.
Find the approximate area of Anglesey in km$^2$. [3]

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Area of Anglesey is ................................... km$^2$.

*(b)* There is a coastal path around Anglesey.
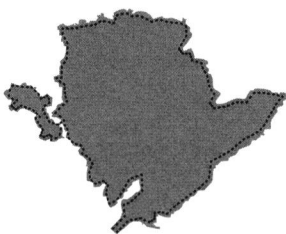


*Diagram not drawn to scale*

Cennydd took 8 days to complete the walk around the coastal path.
He recorded the number of miles that he walked on each of the 8 days.

20, 17, 10, 19, 15, 14, 13, 17

What is the median number of miles walked each day? [2]

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(3310U20-1) **Turn over.**

**2.** Mr Jones and his family visited a café for breakfast.
They ordered from the breakfast menu.

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**BREAKFAST MENU**

Full breakfast £7.50          Tea £1.85
(Child's breakfast half price)

Cereal £2.95          Coffee £1.85

Toast and jam 95p          Fruit juice £1.95

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*(a)* Complete their bill. [4]

| ITEM | COST (£) |
|---|---|
| 2 full breakfasts | £15.00 |
| 1 child's breakfast | |
| 4 toast and jam | |
| 3 teas and 2 coffees | |
| TOTAL | |

(3310U20-1)

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

Mr Jones paid for the breakfast with two £10 and three £5 notes, and told the waitress to keep the change as a tip.
A reasonable tip is thought to be more than 10% of the total cost of the bill.

Explain whether or not Mr Jones gave the waitress a reasonable tip.
You must show all your working.                                              [4 + 2 OCW]

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(3310U20-1)                                **Turn over.**

**3.** The number of people entitled to vote at a National Assembly for Wales election in 2014 is given below.

| Region | Number of people |
|---|---|
| South Wales | 1 358 971 |
| Mid Wales | 423 357 |
| North Wales | 471 891 |
| Total | |

*(a)* What is the total number of people entitled to vote? [1]

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*(b)* The South Wales region is split into South West, Central and South East Wales.

| South Wales region | Number of people |
|---|---|
| South West | 395 019 |
| Central | 496 249 |
| South East | |
| Total | 1 358 971 |

What is the total number of people entitled to vote in South East Wales? [2]

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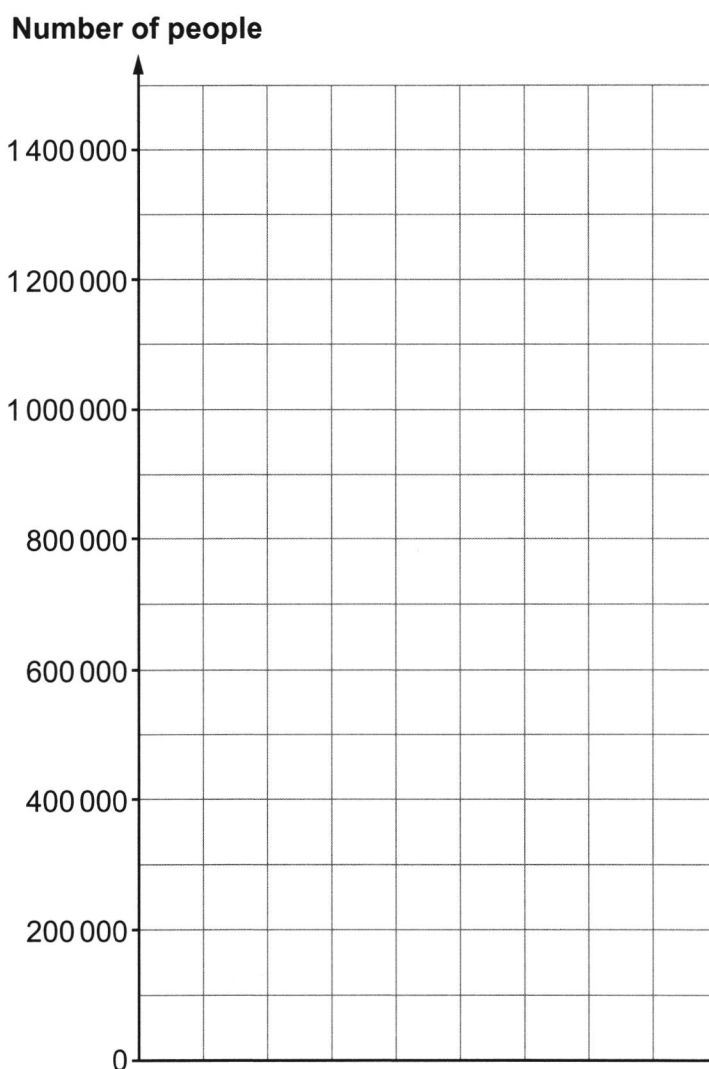*(c)* The number of people entitled to vote at a National Assembly for Wales election in 2014 is given below, correct to the nearest hundred thousand.

| Region | Number of people |
|---|---|
| South Wales | 1 400 000 |
| Mid Wales | 400 000 |
| North Wales | 500 000 |

Use the squared paper below to draw a suitable bar chart to represent this data. [2]

**Number of people**

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**4.** Jane lives in Cardiff and plans to travel to Bangor.

(a) Jane considers catching the train.

### TRAIN TIMES: CARDIFF TO HOLYHEAD

| Cardiff Central | 05:10 | 07:21 | 09:21 |
|---|---|---|---|
| Hereford | 06:25 | 08:27 | 10:27 |
| Chester | 08:19 | 10:19 | 12:19 |
| Bangor | 09:33 | 11:38 | 13:28 |
| Holyhead | 10:22 | 12:22 | 14:22 |

Jane wants to arrive at Bangor before 1 p.m.
She could catch the 07:21 train from Cardiff Central.
How long would the train journey to Bangor take?                    [1]

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(b) Jane decides to drive to Bangor.
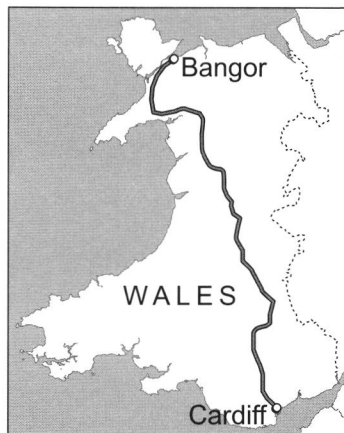


**Cardiff to Bangor
JOURNEY DETAILS**

Distance 200 miles
Time (normal traffic) 4 hours 30 minutes

(i) Jane knows that her car travels 50 miles on one gallon of petrol.
The cost of petrol is £5.90 per gallon.
How much will the petrol cost for Jane to drive from her home to Bangor?
You must show all your working.                    [2]

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(ii)   Jane needs to take a break after every 1 hour 15 minutes of driving.
How many breaks will she need to take before reaching Bangor?   [1]

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(iii)   Jane decides to allow five and a half hours for the whole journey.
She needs to arrive in Bangor by 1 p.m.
What is the latest time she should leave Cardiff?   [1]

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5.  Dafydd plans to hire a van.
    He can only hire the van for a **whole number of days**.
    The cost of hiring the van is given by the formula:

    hire cost = £42 × number of days + booking fee

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

| | | |
|---|---|---|
| When the booking fee is £18, the hire cost for 2 days is £102. | TRUE | FALSE |
| The hire cost is always greater than the booking fee. | TRUE | FALSE |
| When the van is hired for one extra day, the hire cost will be an extra £42. | TRUE | FALSE |
| The hire cost for 2 days is double the hire cost for 1 day. | TRUE | FALSE |

    (b)  Explain why the hire cost cannot be £124 when the booking fee is £18.
         You must show all your working.  [2]

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**6.** The diagram shows the plan of the floor of Nick's room.

8 m

6 m
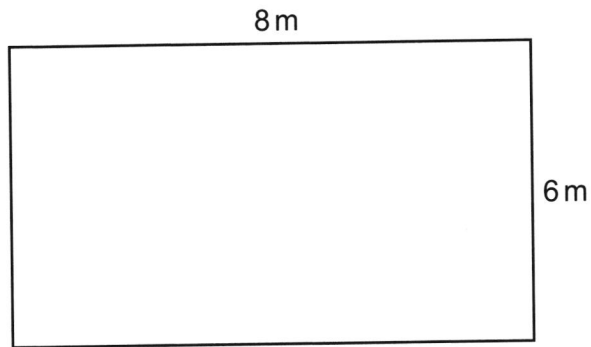
*Diagram not drawn to scale*

Nick is going to fit square carpet tiles to cover the floor.

Square carpet tiles

Each tile measures
0·5 m by 0·5 m

£2.50 per tile

How much will it cost Nick to cover his floor with these carpet tiles?
You must show all your working.

[4]

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© WJEC CBAC Ltd.     (3310U20-1)     **Turn over.**

**7.** The travel graph below shows a journey Gareth made yesterday.

Distance from home (km)
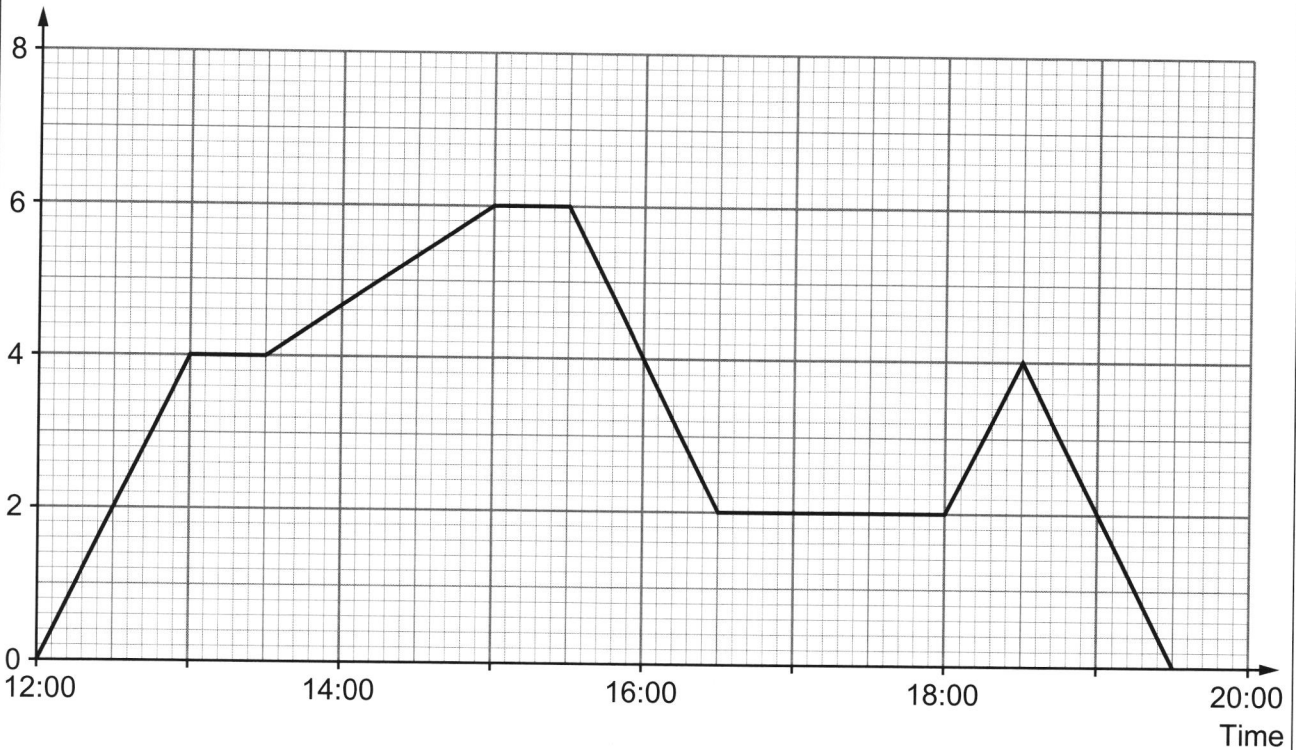


(a) How far away from home was Gareth at 15:00?
Circle your answer. [1]

0 km          2 km          4 km          6 km          8 km

(b) At what time did Gareth arrive back home?
Circle your answer. [1]

14:00          16:30          18:45          19:15          19:30

(c) Sometime after 5p.m., Gareth headed for the supermarket.
The supermarket was closed when he got there so he headed straight back home.
At what time did Gareth arrive at the supermarket?
Circle your answer. [1]

17:00          17:30          18:00          18:15          18:30          19:00

(d) Gareth did not stop for the whole of the time between 15:00 and 15:30.
What could the travel graph tell you about his journey between these times? [1]

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**8.** Ewan is going on holiday to India.
He has saved £450 to exchange for Indian rupees.

*(a)* The exchange rate on the internet last week was £1 = 99.40 rupees.
Had Ewan been going on holiday last week, how many rupees could he have bought?

[2]

*(b)* Ewan exchanges his money on arrival in India.
The exchange rate is now £1 = 99.72 rupees.

The exchange bureau only has 500 rupee notes.
Ewan wants to buy as many rupees as possible with his £450 savings.

How much of his £450 will Ewan spend buying rupees?
Give your answer correct to the nearest penny.
You must show all your working.

[4]

(3310U20-1) **Turn over.**

**9.** *(a)* 36 000 people took part in a survey to find out their favourite type of TV programme. The pie chart shows the results.



(i) How many people chose *Drama* as their favourite type of TV programme? You must show your working. [3]

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(ii)  Twice as many women as men chose *Talent shows* as their favourite type of TV programme.
Calculate how many women chose *Talent shows*.
You must show your working. [3]

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*(b)*  1000 people were asked,

'Should news programmes include details of the weather?
Yes or No?'

70% of the people answered 'yes'.
A pie chart is to be drawn to represent the answers to this question.
What size would the angle be to represent the answer 'yes'? [2]

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Angle representing 'yes' is ................................ °

(3310U20-1)  **Turn over.**

**10.** *(a)*

> Railcard for 16 to 25 year olds
> £30 for a year
> Get $\frac{1}{3}$ off all your rail travel

Nerys and Eleri are sisters.
Nerys is 22 years old and Eleri is 27 years old.

The two sisters live in Holyhead.
Their aunt lives in Milford Haven.
They travel by train to visit their aunt 3 times a year.

Nerys buys a 16-25 Railcard to use for these journeys.
They buy single rail tickets for each journey.
The cost of a **single** rail ticket from Holyhead to Milford Haven is £84.50.
The journey home from Milford Haven also costs £84.50 per ticket.

In a year, how much less does Nerys pay than Eleri for the journeys to Milford Haven and back?
You must show all your working.                                         [5]

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*(b)* Cristiano is 22 years old.
He sometimes travels from Rhyl to Llandudno Junction by train.
The cost of a single rail ticket from Rhyl to Llandudno Junction is £7.80.

Nerys advises Cristiano to buy a Railcard.
Cristiano says,

> It is not worth paying £30 for the Railcard.

How many times in a year would Cristiano have to travel to make it worthwhile for him to buy a Railcard? [3]

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(3310U20-1)

**Turn over.**

**11.** Loretta is paid in euros.
She is checking her tax bill for last year.

The tax rates last year were as follows:

- No tax on the first €3500 of earnings
- Earnings in excess of €3500 and up to €10 500: taxed at a rate of 25%
- Earnings above €10 500: taxed at a rate of 35%

Last year, Loretta's total earnings before tax were €34 500.

How much tax did Loretta pay in total?
You must show all your working.                                      [6]

Tax paid = € ................................

**END OF PAPER**

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(3310U20-1)

| Question number | Additional page, if required.<br>Write the question number(s) in the left-hand margin. | Examiner only |
|---|---|---|
| | | |

(3310U20-1)