| Candidate Name | Centre <br> Number |  |  |  | Candidate Number |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | 0 |  |  |  |

## GCSE

## MATHEMATICS - NUMERACY <br> UNIT 1: NON - CALCULATOR <br> FOUNDATION TIER

## $2^{\text {nd }}$ SPECIMEN PAPER SUMMER 2017

## 1 HOUR 30 MINUTES

## ADDITIONAL MATERIALS

The use of a calculator is not permitted in this examination. 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 $\pi$ as $3 \cdot 14$.

## 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 <br> Mark | Mark <br> Awarded |
| 1. | 4 |  |
| 2. | 3 |  |
| 3. | 2 |  |
| 4. | 3 |  |
| 5. | 5 |  |
| 6. | 5 |  |
| 7. | 6 |  |
| 8. | 4 |  |
| 9. | 5 |  |
| 10. | 5 |  |
| 11. | 4 |  |
| 12. | 5 |  |
| 13. | 5 |  |
| 14. | 3 |  |
| 15. | 4 |  |
| 16. | 2 |  |
| 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 7.

Formula list

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


1. Every week, Sarah does her family shopping on the Internet.


She has to be careful to order things in the correct quantities.
The following table shows the items and quantities that Sarah has ordered.
Place a ' $X$ ' by the items that do not appear to have a sensible quantity and a ' $\checkmark$ ' by those that do. Two have been completed for you.

| Item | Quantity | X or $\checkmark$ |
| :--- | :--- | :---: |
| Orange juice | 2 litres | $\checkmark$ |
| Mushrooms | 50 kilograms |  |
| A bag of sugar | 1 kilogram |  |
| Tomato sauce | 350 litres | X |
| Potatoes | 5 grams |  |
| Chocolate bar | 100 grams |  |
| Bottle of vinegar | 250 millilitres |  |
| Butter | 500 grams |  |
| Milk | 4 litres |  |
| Washing-up liquid | 500 litres |  |

2. The diagram shows the ground layout of the Liberty Stadium.


During a recent game, the number of spectators in the
West Stand was 7345
East Stand was 6339
South Stand was 4991.
The North Stand is kept for away team spectators.
All 1093 away supporters were in the North Stand.
Showing all your working, calculate the total attendance at the game, giving your answer correct to the nearest 100.
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
3. Jay and Alex design a game for their school fete. They each have a copy of a fair spinner as shown below.


The game is based on the probability of obtaining certain numbers on the spinner, when the spinner is spun once.
(a) Jay decides that she wants to place numbers on her spinner that would give an even chance of getting a number greater than 4.
Place 4 numbers on Jay's spinner to show this.

Jay's Spinner

(b) Alex decides that he wants to place numbers on his spinner that would make it certain that you would get a number less than 3.
Place 4 numbers on Alex's spinner to show this.

Alex's Spinner

4. A jewellery shop wishes to create boxes to use for packaging gifts.
(a) Which one of the following patterns cannot be used to form a box in the shape of a cube? Circle your answer.

(b) The net of a gift box is shown below.


What is the name of the 3D shape made from this net?
Circle your answer.

Cuboid Triangular prism Cylinder Sphere Cone
(c) The shape of another gift box is a triangular based pyramid (tetrahedron).

Which of the following diagrams shows the top view of this gift box?
Circle your answer.
A


B


C


D

5. The table below shows the scores in the final of the Langford Bay Golf Championship. The player with the lowest score wins the championship.

| Name | Score |
| :--- | :--- |
| A. Jenkins | -2 |
| H. Smith | 8 |
| J. Evans | 1 |
| L. Hakami | -3 |
| F. Loxley | -7 |
| P.J. Ames | 5 |
| G. Francis | -1 |


(a) Complete the table below to show the names and scores of the players in order from $1^{\text {st }}$ place to $7^{\text {th }}$ place.

| Position | Name | Score |
| :--- | :--- | :--- |
| $1^{\text {st }}$ |  |  |
| $2^{\text {nd }}$ | L. Hakami | -3 |
| $3^{\text {td }}$ |  |  |
| $4^{\text {th }}$ |  |  |
| $5^{\text {th }}$ | J. Evans | 1 |
| $6^{\text {th }}$ | P.J. Ames | 5 |
| $7^{\text {th }}$ |  |  |

(b) What was the difference between the scores of the players in $2^{\text {nd }}$ and $6^{\text {th }}$ places?

Circle your answer.
2
-4
8
7
$-2$
(c) How much less would H. Smith need to score in order to win the championship?
$\qquad$
$\qquad$
6. Gethin wants to organise a mountain walk in the Brecon Beacons with his 3 friends Chloe, Robert and Martyn during 2015.

He has the following information:

- He (Gethin) can only go on a Sunday;
- Chloe cannot go during the last 4 months of the year;
- Martyn works on the first 3 Sundays of each month;
- Robert cannot go during the school holidays;
- All his friends agree that the months of November, December and January are unsuitable for the walk.

The calendar shown on the opposite page is for 2015.
The school holidays are represented by

What would be the latest date that they could all go for the mountain walk?
You may use the calendar provided to show your working.
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$

| JANUARY 2015 |  |  |  |  |  |  | FEBRUARY 2015 |  |  |  |  |  |  | MARCH 2015 |  |  |  |  |  |  | APRIL 2015 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S |
|  |  |  |  | 1 | 2 | 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1 | 2 | 3 | 4 |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 26 | 27 | 28 | 29 | 30 |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | 29 | 30 | 31 |  |  |  |  |  |  |  |  |  |  |  |
| MAY 2015 |  |  |  |  |  |  | JUNE 2015 |  |  |  |  |  |  | JULY 2015 |  |  |  |  |  |  | AUGUST 2015 |  |  |  |  |  |  |
| S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S |
|  |  |  |  |  | 1 | 2 |  | 1 | 2 | 3 | 4 | 5 | 6 |  |  |  | 1 | 2 | 3 | 4 |  |  |  |  |  |  | 1 |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 | 28 | 29 | 30 |  |  |  |  | 26 | 27 | 28 | 29 | 30 | 31 |  | 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| 31 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 30 | 31 |  |  |  |  |  |
| SEPTEMBER 2015 |  |  |  |  |  |  | OCTOBER 2015 |  |  |  |  |  |  | NOVEMBER 2015 |  |  |  |  |  |  | DECEMBER 2015 |  |  |  |  |  |  |
| S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S |
|  |  | 1 | 2 | 3 | 4 | 5 |  |  |  |  | 1 | 2 | 3 |  |  |  |  |  |  |  |  |  | 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | 30 |  |  |  | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 27 | 28 | 29 | 30 | 31 |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | 29 | 30 |  |  |  |  |  |  |  |  |  |  |  |  |

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


The Jones family invited their friends, the Williams and the Phillips families to stay at the Marine Bay Camping and Caravan Park, West Wales.

The Jones family have a caravan and stayed for 3 nights.
The Williams family have a motor-home and only stayed for one night.
The Phillips family stayed in a tent.
The total fee for the 3 pitches was $£ 99$.
For how many nights did the Phillips family stay?
You must show all your working.
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
8. The electricity meter readings at the beginning and at the end of a 3-month period were:

Reading at the end of the period

| 6 | 5 | 1 | 9 | 7 |
| :--- | :--- | :--- | :--- | :--- |

Reading at the beginning of the period

| 6 | 4 | 9 | 4 | 7 |
| :--- | :--- | :--- | :--- | :--- |

The cost of the electricity used was 30 p per unit and there was a standing charge of $£ 25.34$ for the 3 -month period.

Complete the following table to find the total cost.

| Reading at the end of the period |  |
| :--- | :--- |
| Reading at the beginning of the period |  |
| Number of units used |  |
| Cost of the units, in £ |  |
| Standing charge for the 3 months |  |
| Total cost |  |

9. 



Ten people work at Dragon Fitness.
One of these people earns $£ 1000$ per week.
All the other 9 people earn the same weekly wage. The mean wage for all of these 10 people is $£ 280$ per week.
(a) Complete the table below to show the different types of average weekly wage for these 10 people.
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$

| Mean | Median | Mode |
| :---: | :---: | :---: |
| $£ 280$ |  |  |

(b) Complete the following sentence and give a reason for your choice of mode, median or mean.
'The average wage of people working at Dragon Fitness is most typically $£$ $\qquad$ .'

Reason $\qquad$
10. Carys is planning a visit to Blaenau Ffestiniog tomorrow.

Carys lives in Rhyl and plans to travel by train.

She will need to travel by train from Rhyl to Llandudno Junction, then change train to travel on to Blaenau Ffestiniog.


Carys has collected the timetables she needs to plan her day out.

Going to Blaenau Ffestiniog:

| Departs | From | To | Arrives | Duration |
| :---: | :--- | :--- | :---: | :---: |
| $07: 08$ | Rhyl | Llandudno Junction | $07: 28$ | 20 m |
| $07: 57$ | Rhyl | Llandudno Junction | $08: 16$ | 19 m |
| $08: 29$ | Rhyl | Llandudno Junction | $08: 51$ | 22 m |
| $08: 57$ | Rhyl | Llandudno Junction | $09: 16$ | 19 m |
| 09:27 | Rhyl | Llandudno Junction | $09: 43$ | 16 m |
| $09: 57$ | Rhyl | Llandudno Junction | $10: 16$ | 19 m |


| Departs | From | To | Arrives | Duration |
| :---: | :--- | :--- | :---: | :--- |
| 07:39 | Llandudno Junction | Blaenau Ffestiniog | $08: 42$ | 1 h 03 m |
| 10:28 | Llandudno Junction | Blaenau Ffestiniog | $11: 30$ | 1 h 02 m |
| 13:30 | Llandudno Junction | Blaenau Ffestiniog | $14: 32$ | 1 h 02 m |
| 16:33 | Llandudno Junction | Blaenau Ffestiniog | $17: 35$ | 1 h 02 m |

Returning from Blaenau Ffestiniog:

| Departs | From | To | Arrives | Duration |
| :---: | :--- | :--- | :---: | :---: |
| $14: 57$ | Blaenau Ffestiniog | Llandudno Junction | $15: 57$ | 1 h 00 m |
| $17: 37$ | Blaenau Ffestiniog | Llandudno Junction | $18: 35$ | 58 m |
| $20: 23$ | Blaenau Ffestiniog | Llandudno Junction | $21: 21$ | 58 m |


| Departs | From | To | Arrives | Duration |
| :---: | :--- | :--- | :---: | :---: |
| $16: 18$ | Llandudno Junction | Rhyl | $16: 34$ | 16 m |
| $16: 25$ | Llandudno Junction | Rhyl | $16: 43$ | 18 m |
| $17: 15$ | Llandudno Junction | Rhyl | $17: 33$ | 18 m |
| $17: 37$ | Llandudno Junction | Rhyl | $17: 53$ | 16 m |
| $18: 39$ | Llandudno Junction | Rhyl | $18: 55$ | 16 m |
| $18: 53$ | Llandudno Junction | Rhyl | $19: 12$ | 19 m |
| $19: 26$ | Llandudno Junction | Rhyl | $19: 42$ | 16 m |
| $19: 51$ | Llandudno Junction | Rhyl | $20: 10$ | 19 m |

(a) If Carys leaves Rhyl after 9 a.m., what is the earliest possible time at which she could arrive in Blaenau Ffestiniog? Circle your answer.
(b) Carys plans to be at the railway station in Blaenau Ffestiniog by 5 p.m. to begin her return journey home.
How much time, in hours and minutes, will it take to travel back (from the time she leaves Blaenau Ffestiniog to the time she arrives back at Rhyl station)?
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
11. Gwesty Traeth is a guest house and has six bedrooms.

Two of the rooms are described as Double (they have a double bed). Two of the rooms are described as Twin (they have two single beds).
Two of the rooms are described as Single (they have one single bed).
The diagram below shows a plan of these rooms.


The people listed below have contacted Gwesty Traeth requesting rooms for dates in July 2016.

- Sasha and Mia want to share a twin room for the 6th and 7th.
- Mr \& Mrs Jones want a double room for the 5th.
- Flavia wants a single room for the 5 th and 6 th.
- Mr \& Mrs Evans want a double room for themselves and a twin room for their sons, Morys and Ifan, to share for the three nights 5th, 6th and 7th.
- Their daughter Heledd will join them on the 6th and 7th, and she requires a single room.
- Mr \& Mrs Igorson want a double room for the 6th and 7th.

Use the table below to show who is given which room for each of the dates from the 5th July until the 7th July.
No-one should have to change rooms during their stay.

|  | Room 1 | Room 2 | Room 3 | Room 4 | Room 5 | Room 6 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 5th July |  |  |  |  |  |  |
| 6th July |  |  |  |  |  |  |
| 7th July |  |  |  |  |  |  |

12. Thomas buys a number of items from a market stall with two $£ 20$ notes and one $£ 10$ note.

These are the items Thomas buys:


7 cereal bars at 99p each


5 pairs of socks at $£ 3.95$ each


3 sweaters at $£ 7.49$ each

Thomas waits for the owner of the market stall to list all the items he has selected.
$99 p+99 p-99 p+99 p-99 p+99 p+99 p$
$£ 3.95+£ 3.95+£ 3.95+£ 3.95+£ 3.95$
£7.49 + £.7.49 + £7.49

The owner then uses a calculator to add these costs individually and gives Thomas 75p change.
(a) Without the use of a calculator, how could Thomas check the calculation by using an efficient method?
You must show all your working.
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
(b) Did Thomas receive the correct change? If not, state the correct amount.
$\qquad$
$\qquad$
13. Billy and Shaun both completed a survey.

They collected leaves from a number of trees and decided to measure them.
They agreed on the following decisions

- The length of the leaf does not include the stem
- The width of the leaf is measured at the widest section of the leaf

(a) Why have they both agreed on these decisions about measuring the leaves?
(b) Billy measured the length and width of each leaf he had collected.

Shaun did the same with his leaves.
They displayed the lengths and widths of their own leaves on separate scatter diagrams.
Billy's scatter diagram is shown below and Shaun's scatter diagram is shown opposite.


(i) Who found the longest leaf?

Write down the length of this leaf.
cm
(ii) Only one of the two boys collected all his leaves from the same tree. Who was this, Billy or Shaun? Give a reason for your answer.
$\qquad$
$\qquad$
(iii) Draw, by eye, a line of best fit on Shaun's scatter diagram.
(iv) Shaun realises he has one more leaf that he has not included on his scatter diagram. The leaf is damaged in such a way that Shaun cannot measure its width. The length of the leaf is 8.5 cm .
Write down a reasonable estimate for the width of this leaf.
Width $\qquad$ cm
14.

| Ingredients to make 4 pancakes |
| :---: |
| 55 g plain flour |
| 1 egg |
| 100 ml milk |
| 37.5 ml water |
| 25 g butter |
|  |


| Useful information: metric and imperial units |
| :---: |
| 4 ounces is approximately 110 g |

Using the recipe shown above, calculate the quantity of plain flour needed to make 48 pancakes. Give your answer in ounces.
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
15. In a supermarket, the same brand of shampoo is sold in two different-sized bottles.


Large bottle 800 ml for $£ 1.28$


Small bottle 300 ml for 45 p

Which bottle of shampoo offers the better value for money? You must show your working and give a reason for your choice.
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
16. The three Welsh castles, shown below, are all within walking distance of each other.

White Castle



Grosmont Castle


These castles are shown on the map below.
The black lines represent the footpaths between the castles.


Complete the following statements.
The bearing of Skenfrith Castle from White Castle is $\qquad$。

The bearing of White Castle from Grosmont Castle is $\qquad$。

