WJEC CBAC

GCSE

4370/04

MATHEMATICS – LINEAR
PAPER 2
FOUNDATION TIER

A.M. TUESDAY, 17 June 2014

1 hour 45 minutes

Suitable for Modified Language Candidates

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.

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, taking care to number the question(s) correctly.

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.

You are reminded that assessment will take into account the quality of written communication (including mathematical communication) used in your answer to question **3**(b).

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	6	
2.	4	
3.	7	
4.	5	
5.	4	
6.	5	
7.	5	
8.	8	
9.	7	
10.	6	
11.	6	
12.	4	
13.	5	
14.	5	
15.	4	
16.	6	
17.	13	
Total	100	

Formula List

Area of trapezium $= \frac{1}{2}(a + b)h$
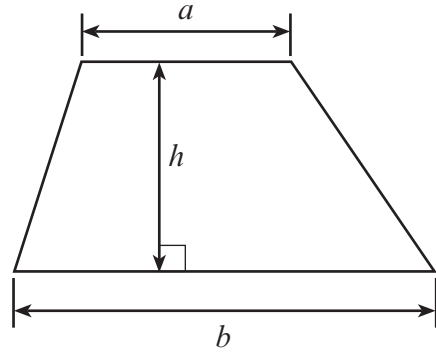
Volume of prism = area of cross-section × length

02
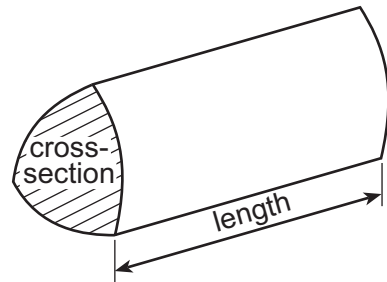
1. *(a)* Ahmed buys some groceries.
Complete the **four** spaces in the following table to show his bill for these items. [4]

Amount	Item	Cost (£)
6 packs	Butter @ £1.24 per pack	....
4 kg	Sugar @ 86p per kg	....
.... packs	Currants @ £1.54 per pack	4.62
Total		....

(b) He gets a 20% discount.
How much is this discount? [2]

....

....

....

2. Circle the quantity that is the appropriate estimate for each of the following. [4]

Height of a man	170 km	170 m	170 mm	170 cm
Weight of a large dog	28 kg	28 g	28 mg	280 g
Capacity of a car's fuel tank	60 cm^3	600 ml	60 litres	6000 litres
Floor area of a room	18 m^2	18 cm^2	18 mm^2	18 cm^3

(4370-04) **Turn over.**

3. A box is placed on a scale.

box

1kg 0
900 100
grams
800 200
700 300
600 400
500
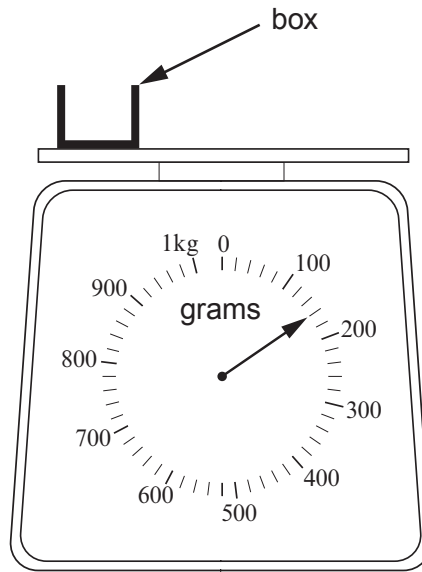
(a) Two of these boxes are now placed on the scale.
Draw the pointer on the scale to show how much they weigh. [2]

1kg 0
900 100
grams
800 200
700 300
600 400
500
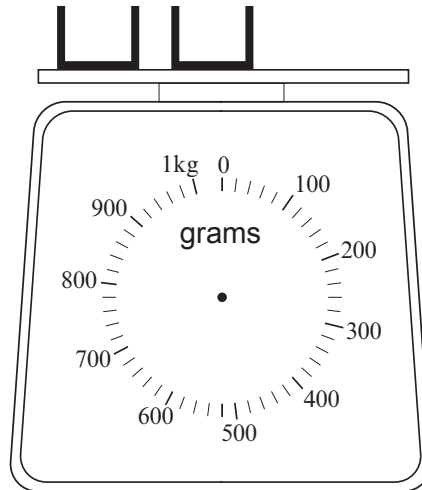
(b) *You will be assessed on the quality of your written communication in this part of the question.*

Five identical cubes are now placed as shown.
Find how much one cube weighs. [5]

....

....

....

....

....

....

....

....

....

....

(4370-04)

Turn over.
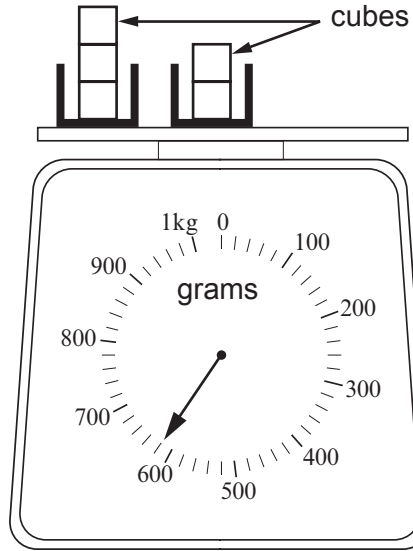
4. *(a)*
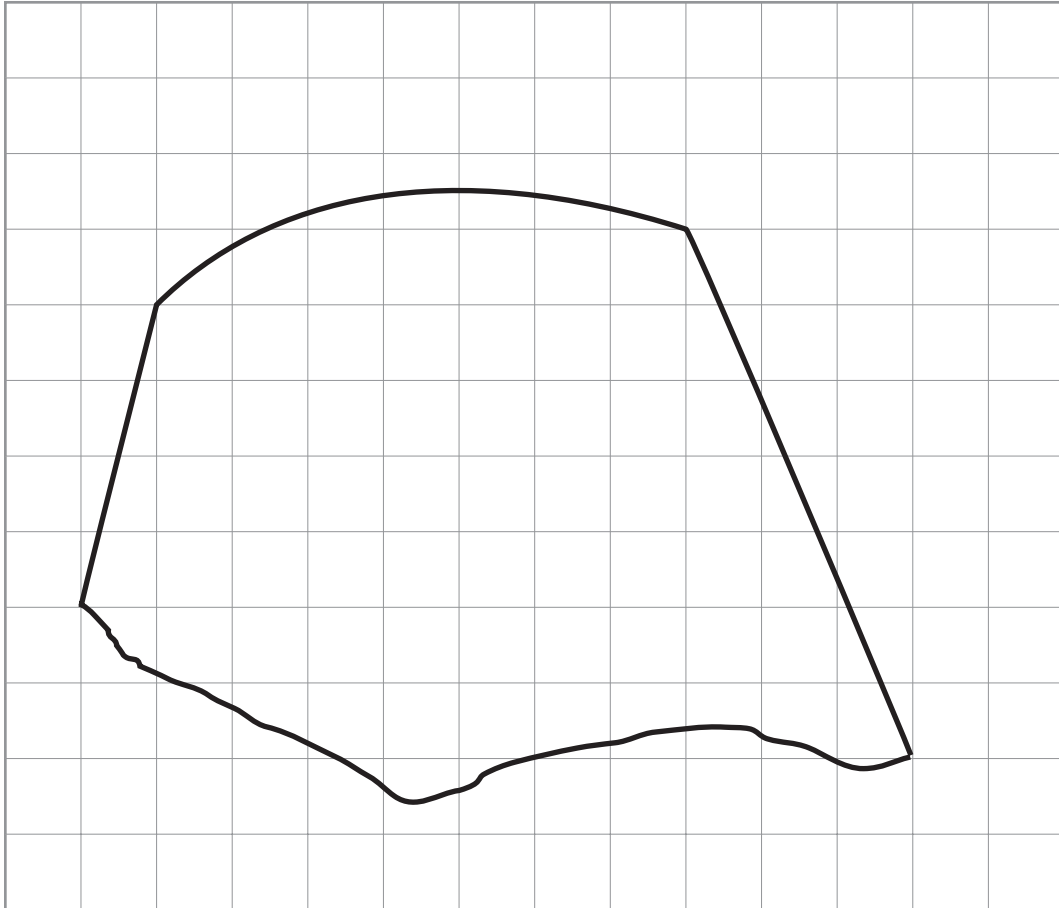
The above shape is the outline of a flowerbed in a park.
It is drawn on a square grid where each square represents an area of $8\,m^2$.
Estimate the area of the flowerbed. [3]

....

....

....

....

Area of the flowerbed = ... m^2

(b) Complete the following figure so that it is symmetrical about the line *PQ*. [2]

Turn over.

5. *(a)* Write down the special name of the straight line shown in each of the following diagrams. [2]

....

....
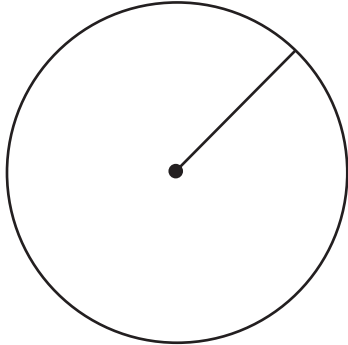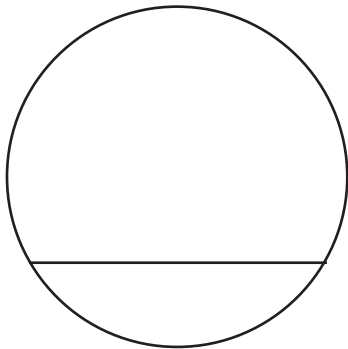
(b) (i) Measure, in millimetres, the length of the line *AB*. [1]

Length of *AB* = ... mm

A

B

C ●
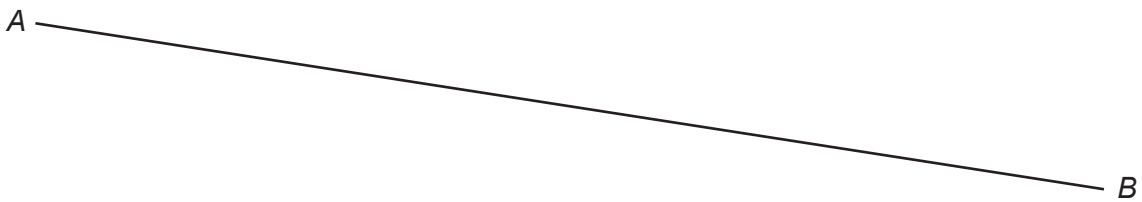
(ii) Draw the line through *C* that is perpendicular to *AB*. [1]

© WJEC CBAC Ltd. (4370-04)

6. The chart shows the number of millimetres of rainfall recorded in Wrexham and Swansea on five different days.
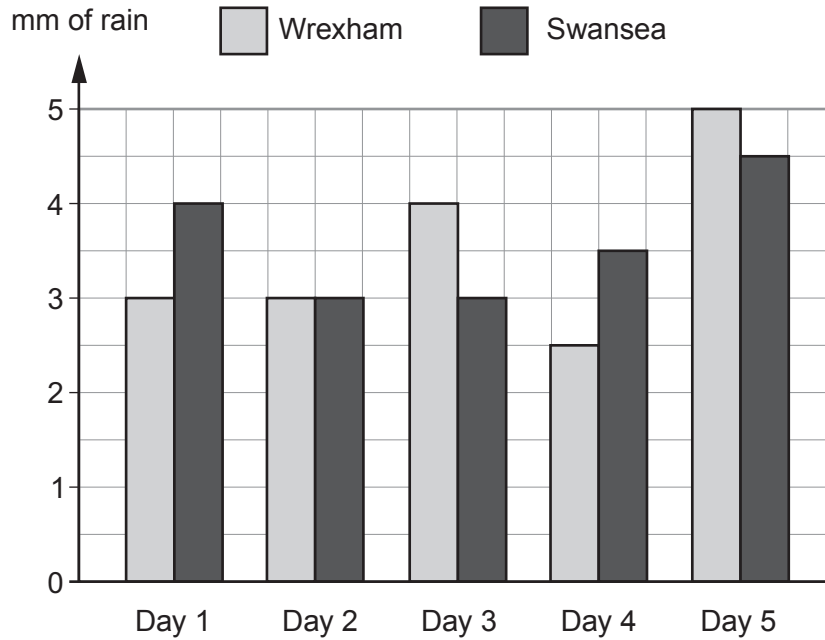
(a) On which day did Wrexham and Swansea have the same amount of rainfall? [1]

....

(b) On how many days did Wrexham have less than 4 mm of rainfall? [1]

....

(c) On how many days was there more rain in Swansea than in Wrexham? [1]

....

(d) Find the total number of mm of rain that fell on Wrexham over these 5 days. [1]

....

(e) What was the median number of mm of rain in Swansea over the 5 days? [1]

....

....

7. *(a)* Draw a circle around all of the following fractions that are equal to 40%. [2]

$$\frac{8}{20} \qquad \frac{1}{4} \qquad \frac{2}{5} \qquad \frac{10}{40} \qquad \frac{5}{20}$$

(b) Shade 30% of the following figure. [1]
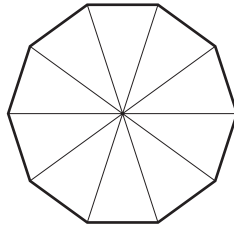
(c) Find, in its simplest form, $\frac{5}{6} - \frac{1}{3}$. [2]

....

....

....

....

....

....

8. *(a)* Find the value of

(i) $3 - (-4) + (-6)$, [1]

....

(ii) $20 - 3(-2) + 5(-6)$. [1]

....

(b) Calculate 87% of 58. [2]

....

....

(c) Find the value of each of the following. Give each answer correct to one decimal place.

(i) $\dfrac{75\cdot61}{42\cdot3 + 6\cdot34}$ [2]

....

(ii) $3\cdot4^2 + \sqrt{6\cdot457}$ [2]

....

4370
040011

9. *(a)* Describe **in words** the rule for continuing each of the following sequences.

(i) 2   9   16   23   30   .... [1]

Rule:

....

....

(ii) 4   −12   36   −108   324   .... [1]

Rule:

....

....

(b) (i) A ticket costs t pounds (£). Write down, in terms of t, the cost of the ticket in
pence. [1]

....

....

(ii) Joan is h cm tall. Gill is 3 cm shorter than Joan.
Write down Gill's height in terms of h. [1]

....

....

(iii) A block weighs w kg.
Write down, in terms of w, the weight of 8 such blocks. [1]

....

(c) Solve

(i) $3x = 15$, [1]

....

....

....

(ii) $x + 5 = 16$. [1]

....

....

10. The ages (in years) of the 8 members of an evening class are as follows:

| 36 | 28 | 45 | 24 | 31 | 34 | 27 | 47 |

(a) (i) Find the range of the ages of the members of the class. [1]

....

....

(ii) What was the range of their ages one year ago?
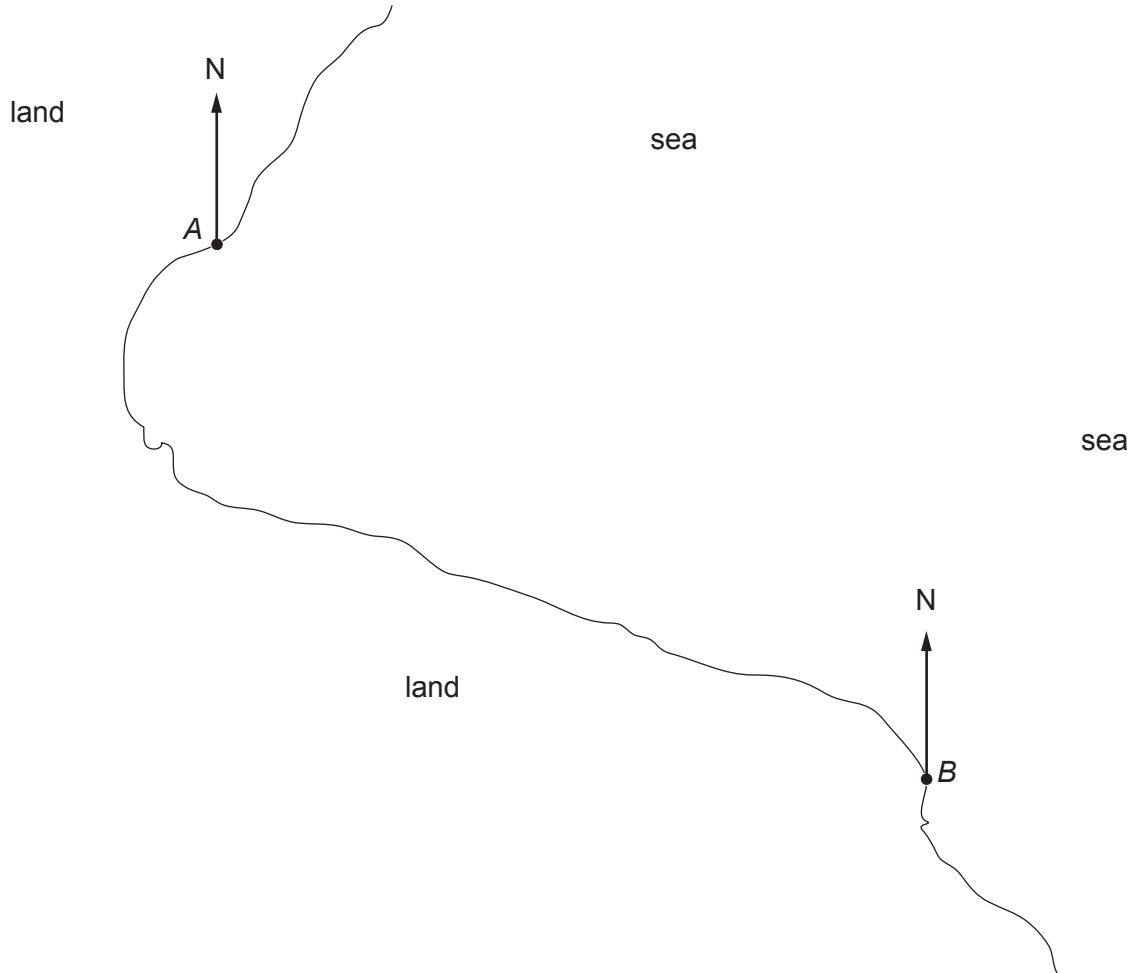Give a reason for your answer. [2]

....

....

....

....

(b) Find the mean age of the members of the class. [3]

....

....

....

....

....

11. *(a)* A and B are two ports shown on a map with scale 1 cm = 10 km.
Measure and find the straight line distance, in km, from A to B. [3]

N

land

sea

A•

sea

N

land

•B

....

....

....

....

(b) A ship is on a bearing of 097° from A and on a bearing of 342° from B.
Plot the position of the ship and mark it X. [3]

....

Examiner
only

12. *(a)* Geoff changed £1200 into US dollars ($), when the rate of exchange was £1 = $1.52.
How many dollars did he get? [2]

....

....

....

....

(b) During his stay, Geoff spent $1649 altogether. On his return, he changed his remaining
dollars back into pounds, at the same exchange rate.
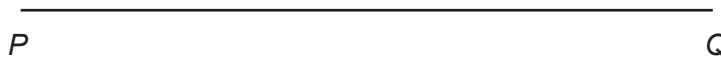How much did he receive in pounds? [2]

....

....

....

....

....

....

....

13. *(a)* Using a ruler and a pair of compasses, construct an angle of 30° at the point *A* on the line below. [3]
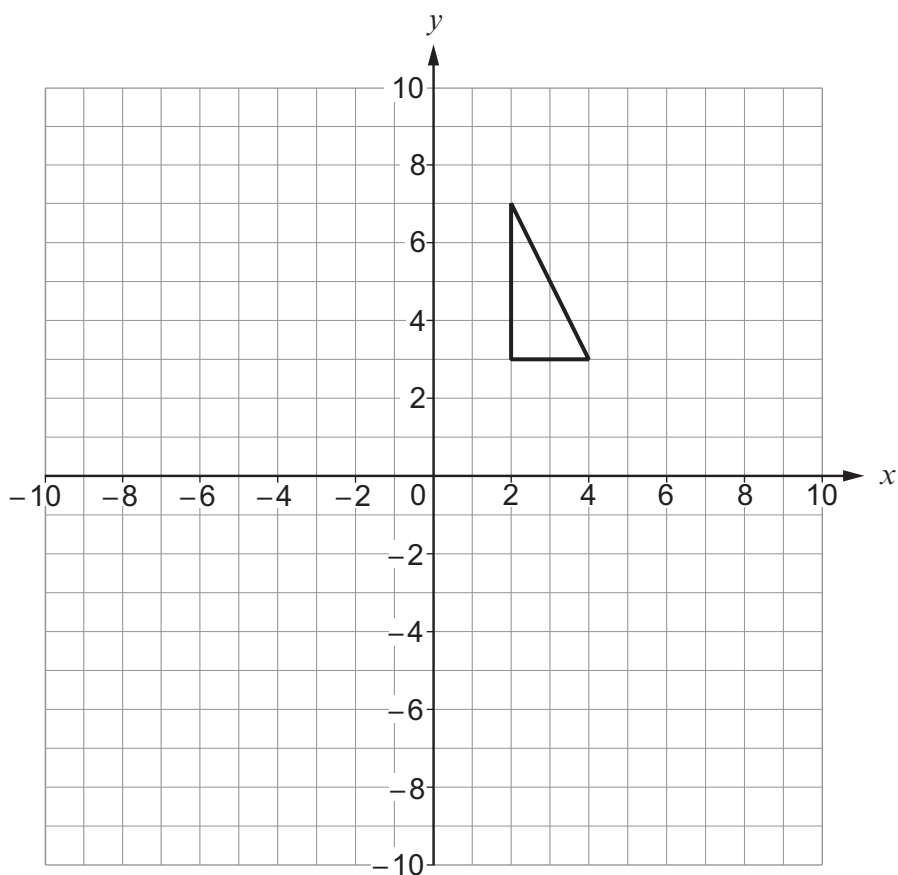
A •————————————————————

(b) Using a ruler and a pair of compasses, draw the perpendicular bisector of the line *PQ*. [2]

————————————————————
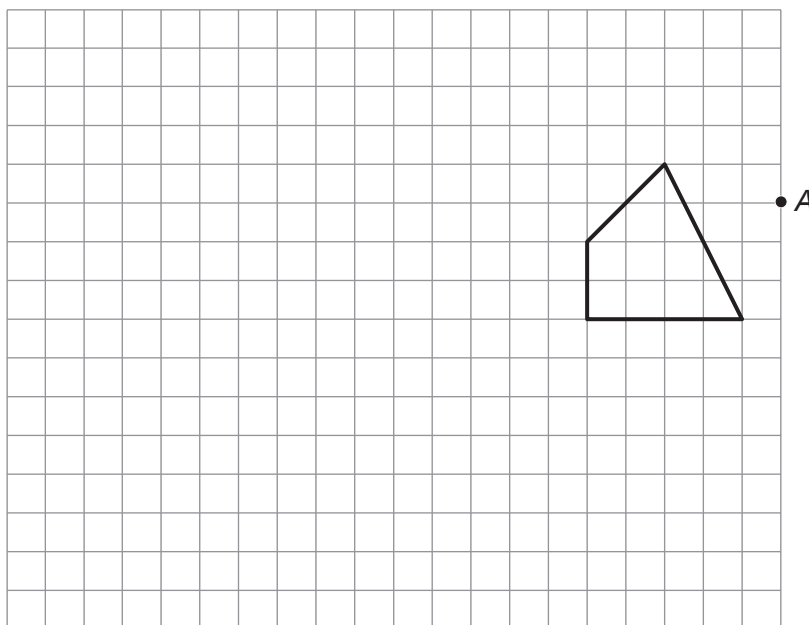P   Q

© WJEC CBAC Ltd. (4370-04)

14. *(a)* Draw a reflection of the triangle in the line y = 1. [2]

(b) Enlarge the shape shown on the grid by a scale factor of 2, using *A* as the centre of the enlargement. [3]

© WJEC CBAC Ltd. (4370-04) **Turn over.**

15. International football has rules for the dimensions of rectangular football pitches.
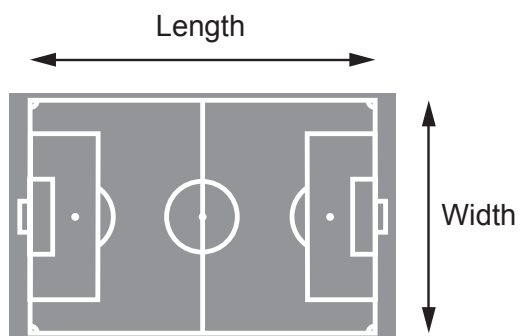
Length

Width

Diagram not drawn to scale

Football pitch dimension rules:
- the minimum width is 45 m
- the maximum width allowed is double the minimum width
- the maximum length is 120 m
- the minimum length allowed is three-quarters of the maximum length

Susan says

'The maximum area of a pitch is **at least 50%** greater than the minimum area of a pitch.'

Is Susan correct?
You must show all your working to explain your answer. [4]

....

....

....

....

....

....

....

....

....

....

....

....

16. Claudia was given the following information.

UK Income Tax

April 2013 to April 2014

taxable income = gross income – personal allowance

- personal allowance is £9205
- basic rate of tax: 20% on the first £32 255 of taxable income
- higher rate tax: 40% is payable on all taxable income over £32 255

During the tax year 2013 to 2014, Claudia's gross income was £52 250.

Calculate the total amount of tax that Claudia should pay.
You must show all your working. [6]

17. *(a)* In 2013, there were 119 days on which there was rain or snowfall in Moscow.
For what fraction of the number of days in 2013 was there **no** rain and **no** snowfall in Moscow? [1]

(b) The mean temperature in Moscow for a 12 month period is 4°C.
It is warmest in July, about 26°C.
What would be the estimate for the mean temperature in Moscow if the temperature for July was not included? [4]

(c) One year, during the 31 days in March, the temperature was recorded every day at midday.
The results are shown in the table below.

Midday temperature, t in °C	Number of days
$-12 \leqslant t < -10$	1
$-10 \leqslant t < -8$	3
$-8 \leqslant t < -6$	5
$-6 \leqslant t < -4$	8
$-4 \leqslant t < -2$	4
$-2 \leqslant t < 0$	10

Calculate an estimate for the mean midday March temperature in Moscow.
You must show all your working. [4]

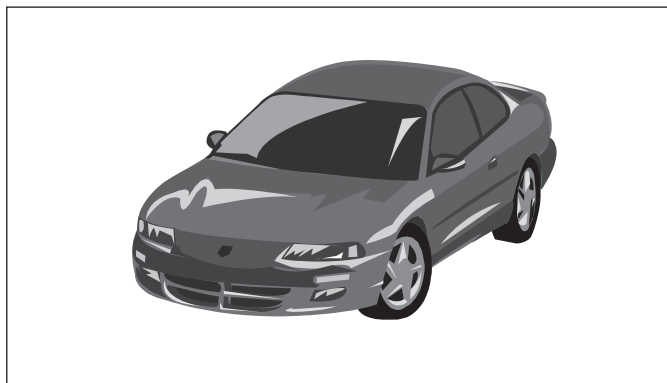*(d)* Boris bought a car in Moscow for 251,850 Russian roubles.

Each year, the value of Boris's car goes down by 10% of its value at the start of the year. At the end of two years, by how much has the value of Boris's car gone down? [4]

....

....

....

....

....

....

....

....

....

END OF PAPER

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

BLANK PAGE

**PLEASE DO NOT WRITE
ON THIS PAGE**

(4370-04)

BLANK PAGE

**PLEASE DO NOT WRITE
ON THIS PAGE**

(4370-04)